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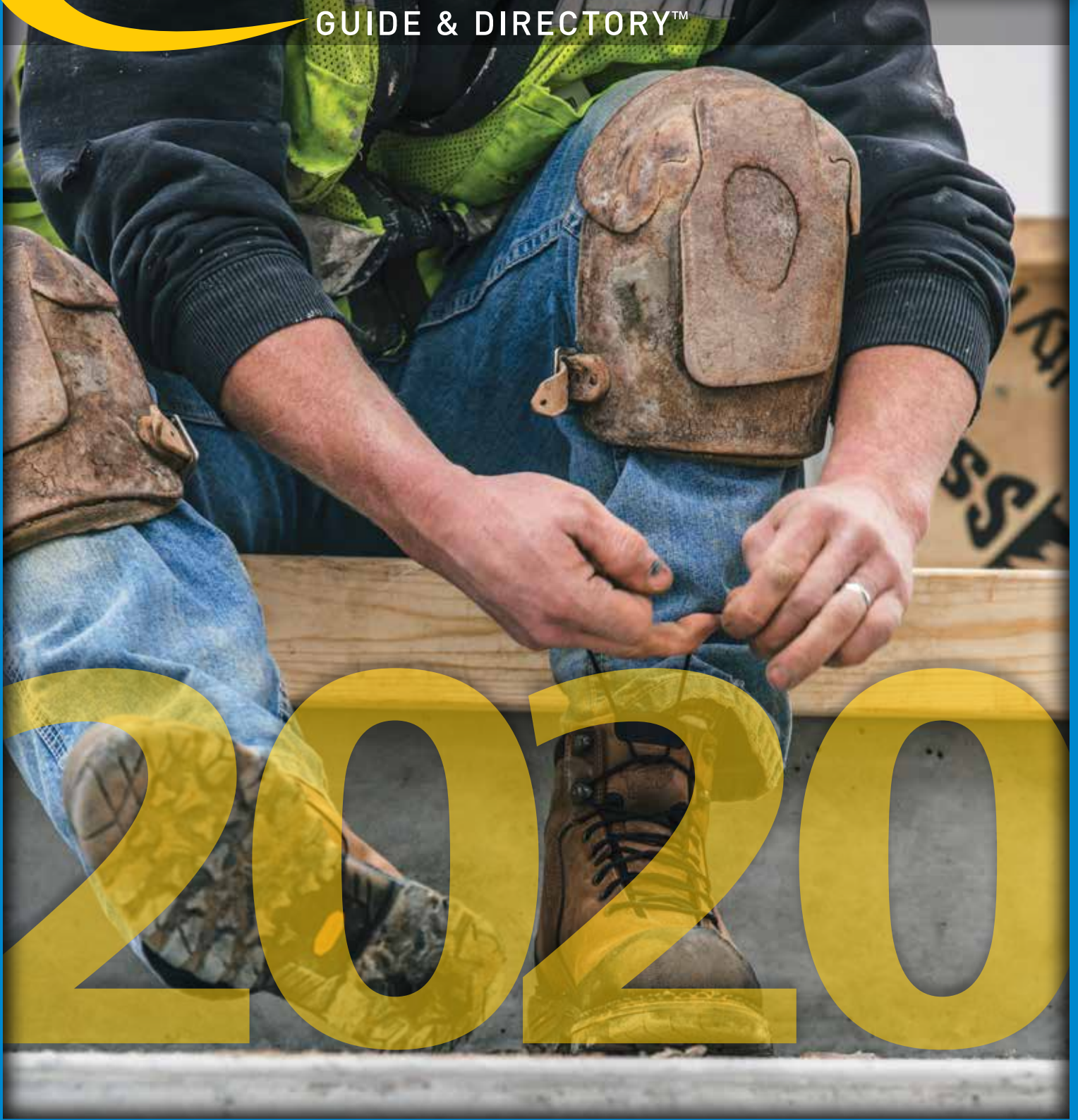
# ***Excavation SAFETY***

GUIDE & DIRECTORY™

PIPELINE EDITION



Pipeline Association  
for Public Awareness





**Call before you dig**  
Call 811 or your local One Call System

**Wait the required time**

Generally 48 to 72 hours, depending upon state requirements

**Respect the marks**

Flags, paint or other markers (normally yellow for pipelines)

**Excavate with care**

Pothole or hand dig to determine exact location of pipelines

# Pipeline Safety Guidelines



Damage prevention is a shared responsibility. Digging safely begins with a call to your One Call System. Most state laws require this call, and it is normally free. Excavation information is then sent by the One Call System to operators of underground facilities near your excavation. The operators will mark the location of their facilities in accordance with the applicable state requirements. Emergency contact information should be obtained directly from the operator or from nearby pipeline markers.

Pipelines are an essential part of our transportation system. We depend on them every day to transport gas and liquid products to our homes and businesses. Pipeline companies perform ongoing maintenance to ensure the reliability of their systems. Local communities also play a vital role in keeping our Nation's energy infrastructure safe and secure. Individuals who observe any unusual conditions or suspicious activity near a pipeline facility should immediately report these to local law enforcement or the pipeline operator. Following these guidelines will help prevent pipeline emergencies and keep pipelines the safest method for transporting gas and liquid products.

## Know the hazards

- Natural gas and other petroleum products will ignite and burn.
- If exposed to the skin, serious irritations may occur.
- Escaping gases can displace oxygen.

## Recognize unsafe conditions

- Pipelines that are: leaking, damaged, insufficiently supported, exposed to high heat, or threatened by natural forces are all unsafe conditions.
- Any damaged or weakened pipeline must always be checked by the pipeline company for remaining strength. Even very minor damages can cause future leaks or ruptures and must be investigated.
- Pools of liquid, blowing dirt, hissing sounds, vapor clouds, gaseous odors, bubbles in standing water, dead vegetation and frozen soil or ice next to pipelines are all signs of a pipeline leak and should be treated as an emergency.

## Respond immediately

- Immediately leave the area while avoiding any action that may cause sparks. Abandon all equipment and get a safe distance away.
- Call 911 and then immediately notify the pipeline company.
- Keep others away until emergency officials arrive. Stay upwind, do not attempt to operate pipeline valves or extinguish any pipeline fires.

## Llame antes de excavar

Llame al 811 o llame al número de su "One Call System" local

## Espere el tiempo necesario

Generalmente 48 a 72 horas conforme a los requisitos estatales

## Respete las señales

Banderas, pintura, u otras señales (normalmente amarillas para los gasoductos y oleoductos)

## Excave con cuidado

Cave a mano para determinar el lugar exacto de los gasoductos y oleoductos

# Guía de Seguridad de Tuberías



La prevención de daños es una responsabilidad compartida. Excavar con cuidado empieza con una llamada a su "One Call System" local. La mayoría de las leyes estatales requieren esta llamada y normalmente es gratis. Información sobre la excavación es enviada por el "One Call System" a los operarios de las instalaciones subterráneas que están cerca de su excavación. Los operarios marcarán el lugar donde tienen sus instalaciones en acuerdo con los requisitos estatales. Información sobre contactos de emergencia puede ser obtenida directamente del operario o de las señales en los gasoductos u oleoductos.

Las tuberías son parte esencial de nuestro sistema de transporte. Dependemos de ellas a diario para transportar productos de gas y líquido a nuestros hogares y negocios. Las compañías de tubería realizan mantenimiento para asegurar la confiabilidad de sus sistemas. Comunidades locales también pueden jugar un papel importante en mantener segura la infraestructura nacional de energía. Individuos que observen cualquiera condición inusual o actividades sospechosas cerca de facilidades de acueductos debe reportarlo inmediatamente a las autoridades locales o al operador del acueducto. Siguiendo las pautas antedichas ayudará a prevenir emergencias de tubería y garantizar que las tuberías son el método más seguro para transportar productos de gas y líquido.

## Conozca los peligros

- Gas natural y otros productos petroléos pueden encenderse y quemar.
- Si expuesta a la piel, serias irritaciones pueden ocurrir.
- Gases escapados pueden desplazar el oxígeno.

## Conozca las condiciones peligrosas

- Condiciones peligrosas son: gasoductos u oleoductos que tienen escapes, están dañados, el soporte es insuficiente, están expuestos a temperatura muy alta, o amenazados por las fuerzas de la naturaleza.
- Cualquier gasoducto u oleoducto dañado o frágil siempre debe ser revisado por la compañía que los dirige para determinar la resistencia restante. Incluso daños menores en los gasoductos u oleoductos tienen que ser investigados porque pueden causar escapes o rupturas en el futuro.
- Indicios de un escape en un gasoducto u oleoducto son: charcos de líquido, tierra soplada, sonido de silbidos, nubes de vapor, olores a gas, burbujas en agua estancada, vegetación completamente seca, y tierra congelada o hielo alrededor de ella. Todos estos indicios deben ser tratados como una emergencia.

## Actúe de inmediato

- Aléjese del área inmediatamente y evite cualquier acción que pueda causar chispas. Abandone todo el equipo y manténgase a una distancia segura.
- Llame al número de emergencia 911 y luego de inmediato notifique a la compañía que dirige el gasoducto u oleoducto.
- No deje que otras personas se acerquen hasta que llegue el personal de emergencia. Manténgase contra el viento y no intente manejar las válvulas ni extinguir incendios en el gasoducto u oleoducto.





**Saving Lives  
through Education**

**The great education  
you expect**

Started in 2004, this event provides vital industry-leading education to help all stakeholder groups learn safe practices and lower costs associated with underground damages.

### Benefits of attending:

- 80+ education sessions across all stakeholder groups
- Engage in peer-to-peer exchanges during sessions
- Participate in panel discussions and industry summits
- Expand your areas of expertise by attending a session on a new topic

*"It is the #1 opportunity for education and networking for our industry as a whole"*

– Bruce Campbell, MISS DIG System Inc.

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The **Excavation Safety Guide** is designed to be a reference for readers to use all year long. The articles are concise, to the point and focus on current industry trends and technologies. The resources include the CGA Excavation Best Practices, a complete One Call Center listing along with the state laws and provisions, a pull-out Emergency Response poster plus much more. Protecting the buried infrastructure is becoming more of a challenge every day and this guide will help you navigate through these challenges.

The Excavation Safety Guide Pipeline Edition is published annually by:  
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## FREE Excavation Emergencies Poster

LOOK ON PAGE 29 TO FIND YOUR COMPLIMENTARY PULL-OUT POSTER with complete information on how to recognize and respond to the hazards inherent in utility excavation. **Provided by Pipeline Association for Public Awareness**

FEATURING CURRENT PRACTICES AND TECHNOLOGICAL  
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This manual is an informational and educational guide, but it is not intended to provide you with any definitive information regarding legal issues. You need to follow your specific state laws and OSHA rules. If you have any questions on issues raised in this guide, please consult with legal counsel and/or your state One Call Center.



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through Education**

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of surveyed attendees stated  
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*– Verlyn Bailly, TransCanada*

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Subsurface Utility Engineering allows a designer to make important decisions related to utility coordination, utility accommodation and utility relocation.

# Empowering



Quality Level A (QL-A) provides the precise horizontal and vertical location of utilities along with type, size, condition, and material, which is obtained by exposing the utility, usually through vacuum excavation.



There are several key considerations for defining the scope of work for a Subsurface Utility Engineering program such as the potential project risks associated with utility location information.



The U.S. construction industry is among the world's largest, with annual expenditures of over \$1.2 trillion. Construction projects are taking place all over the country, making the industry's outlook a positive one. More and more, medium- to large-scale construction projects are implementing the practice of Subsurface Utility Engineering (SUE) at the design phase to reduce risk and save on long term costs. Subsurface Utility Engineering (SUE) is an engineering practice that makes it possible to more accurately establish the location of buried utilities within a project area. This provides a foundation for decision-making around construction design, allowing a de-

evaluating the integrity of data based on four Quality Levels:

- Quality Level D (QL-D): Information derived from existing records or oral recollections.
- Quality Level C (QL-C): Information obtained by surveying and plotting visible above-ground utility features and using professional judgment to correlate this information with the results of QL-D.
- Quality Level B (QL-B): The application of surface geophysical methods to determine the existence and horizontal position of subsurface utilities within a

### Does every project require all four Quality Levels?

Where a topographic survey exists that was recently completed by an engineer or surveyor, QL-C can typically be considered complete as surface utility data is captured during the topographic survey. The topographic survey should be correlated with information collected at the QL-D stage, to develop a starting point for the field investigation. Insights gleaned from combining these two datasets allow the investigation to be targeted and precise.

What is most important is that Quality Levels be carried out in their prescribed

# SAFE Construction and Sound Design: Components of a Successful Subsurface Utility Engineering (SUE) Program

BY KEVIN VINE

signer to make important decisions related to utility coordination, utility accommodation and utility relocation at the outset.

And the gains are real. In 1996, the Federal Highway Administration commissioned Purdue University to study the cost savings realized from implementing SUE and found that for every \$1.00 spent, \$4.62 was saved.

### What is the main objective of a Subsurface Utility Engineering program?

Simply put, Subsurface Utility Engineering cuts project risk and eliminates surprises at later stages of a project. It also saves money. However, not all SUE programs are created equal and there are key considerations involved to ensure that risk is effectively managed and a return on investment is realized.

### What exactly comprises a SUE program?

SUE is based on the CI/ASCE 38-02 Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, which provides a framework for

When it comes to deliverables, there is a lot of room for customization to meet unique project needs. However, deliverables should always be overseen and stamped by a professional engineer.



project's limits. Non-destructive technologies including Ground Penetrating Radar (GPR) and Electromagnetic (EM) tools are leveraged at this stage to accurately detect conductive and non-conductive underground assets.

- Quality Level A (QL-A): Also known as daylighting, QL-A provides the precise horizontal and vertical location of utilities along with type, size, condition and material, obtained by exposing the utility, usually through vacuum excavation.

order – QL-D, QL-C, QL-B, QL-A. This is the most effective strategy for minimizing risk and avoiding rework. QL-D and QL-C should be applied to the entire project area including areas not expected to be affected by future construction, (e.g., temporary staging areas) whereas QL-B can be targeted to the impacted area. QL-A investigations are required when depth data or precise horizontal location must be obtained to achieve project goals. QL-A should also be considered when the results of a QL-B investigation appear to be

conflicting with existing utility records in key project areas.

What factors can impact the SUE schedule? There are several factors that can affect the SUE schedule which should be considered in relation to a project's overall timeline. Examples of these factors include:

- The client requests data acquisition activities that reside outside the scope of SUE which may result in project delays. For example, chamber investigations may require traffic control, night work, special permits and on-duty police scheduling and fees.
- Other activities occurring on the project site can impact the schedule, for example, topographical surveying, geotechnical or environmental assessments.
- The location of the SUE investigation. If the investigation occurs within a rail or congested vehicle corridor, traffic control and closures may be required. If however, the investigation is related to a boulevard or private construction land, there will be far fewer time constraints.
- The time required to review QL-B data, and schedule test pits. Determining the necessity, quantity and location of test pits usually occurs after reviewing the completed QL-B investigation and subsequent CAD utility drawing.

## What deliverables should be provided?

SUE deliverable formats can vary greatly based on project specifications. Considerations for deliverables will include whether data is to be reflected on separate layers or a single layer, labelling conventions, CAD software format (MicroStation or AutoCAD), digital submissions vs. hard copy, color conventions, etc. The SUE report format may also vary based on whether the Project Manager desires photographs of test pits, test pit sketches, field sketches of utility locations, etc. When it comes to SUE deliverables, there's a lot of room for customization to meet the unique needs of the project. Having said that, deliverables should always be overseen and stamped by a Professional Engineer.

## Tips for carrying out a successful SUE project

**Get familiar with the Scope of Work.** Ensure that you and your team are familiar

with the data collection activities that are standard for a SUE project and the data collection activities that reside outside of a standard SUE scope of work. For example, horizontal utility location data captured at Quality Level B and utility appurtenances captured at Quality Level C are standard – pipe invert and chamber measurements are not. A clear understanding of project scope will ensure that all required data is collected accurately and that no incorrect assumptions are made.

**Start each project with a kick-off meeting.** Every SUE project should commence with a project kick-off meeting that includes stakeholders such as the SUE Project Manager, Project Engineer, and Field Supervisor. If a topographic survey and base plan of the project area already exists, be sure to get a copy from the client. Topics to be discussed at the meeting should include any knowledge or documentation of existing or future utilities within the project area, proposed limits of the SUE investigation, expected deliverables, proposed SUE investigation timelines, project methodology, project-specific Quality Management and Health & Safety plans, and roles & responsibilities.

**Plan ahead.** Develop a comprehensive memorandum that incorporates the CI/ASCE 38-02 standard to ensure successful project execution. The memorandum should include a work plan, schedule, personnel hours and estimated cost. An on-site visit should also be carried out as it provides an opportunity to observe traffic conditions at different times, propose staging areas and locations, identify possible health and safety hazards, determine private and public property access locations, confirm control monument locations and assess parking restrictions. In advance of the field work, the project team will need to procure necessary permits; review existing utility documents, data and drawings; and secure buried asset records.

**Make health and safety your top priority.** Each SUE project should include a customized Health & Safety Plan that conforms to project-specific requirements. Traffic control is imperative and should include a documented plan that abides by municipal and state guidelines. Hazard assessments should

be carried out to address potential hazards associated with traffic control including pedestrian traffic, weather patterns, visibility, etc. Required traffic control procedures and devices should be clearly documented along with procedures for safely setting up and removing devices and signage. Assess the health and safety certification requirements of the project site to ensure that all personnel have the necessary training.

**Prepare for the unexpected.** As SUE projects vary greatly in size and scope, unique and unexpected challenges can arise. Many variables can affect the ability to collect quality data such as broken tracer wires, soil conductivity, unexpected site obstructions, and conflicting record and site data. To keep projects on time and on budget, a quality project team may be required to innovate to overcome these unexpected challenges as well as increase stakeholder communications.

**Be consistent.** Processes should be standardized, particularly during the data capture stage. While recording field notes, templates should be leveraged that guide the data collection process such as tracing, capturing GPS points, documenting field conditions and daily project status. The application of standard project management principles should be prioritized for disparate field data collections activities.

**Use the right technology.** The CI/ASCE 38-02 Standard stipulates that “appropriate geophysical methods” be leveraged to carry out the Quality Level B aspect of a SUE program. As this is a generic statement, there is room for interpretation. Electromagnetic (EM) pipe and cable locating equipment is extremely effective at locating utilities comprised of or buried with electrically conductive material. When data collected at the QL-D and QL-C stages of a SUE program reveals a likelihood that non-conductive utilities reside on the project site, such as concrete or plastic pipes, buried trunk sewers, etc., other methods can be leveraged to supplement the SUE scope of work such as Ground Penetrating Radar (GPR), Time Domain Electromagnetics and Seismic Refraction. The decision to apply advanced geophysics needs to be weighed against the desired project outcome. **ESG**



# Excavation TIPS

## EXCAVATION ACTIVITIES YOU MAY NOT HAVE CONSIDERED

Many people think that the only time it is necessary to contact 811 is when conducting excavation activities with large equipment. On the contrary, hand excavation (using non-mechanized equipment like a shovel) or pushing something into the ground (such as a sign or grounding rod) can also cause damage to underground utilities, resulting



Protect yourself and your crews from hazards, by contacting 811 for locates before engaging in the following excavation activities:

- Using grounding rods or preparing for concrete work with metal pins or curb-stakes
- Performing roto-milling or road grading
- Landscaping work like roto-tilling and planting trees or bushes
- Installing a fence, egress window, ground anchor (aka corkscrew stake) or even a realtor sign

in property or equipment damage, repair costs, fines, injuries or even death. Valid locate tickets are required for every digging project, no matter if it's on private, commercial or public property.

You may think you know where the facilities are from a previous locate request but keep in mind that underground lines can move over time, either from erosion, grading or natural shifting of the

earth. Be sure to request current locates.

Some states don't require a locate ticket for excavation by hand or with non-mechanized equipment; however, across the nation there are many damages annually caused by using a shovel. Check your local locate laws to make sure you are not breaking one.

For your safety and the safety of your crews, plan ahead. Build time into your projects for facility locates to be completed. Contact 811 – it's a free service and required by law in most states! **ESG**



# Just One More Question

BY ALLEN GRAY



Excavating in our congested rights-of-way is difficult and fraught with peril on many fronts. Dealing with myriad hazards associated with utility construction requires a comprehensive overall safety program addressing everything from trench safety to confined space. Most safety precautions are straight forward and definitive in mitigating the dangers associated within any given circumstance. However, there is one area that not only requires set precautions, but also requires constant attention, improvisation and engagement – underground utility safety and damage prevention... also known as the 811 process.

Contending with existing facilities during excavation activities requires methods and processes that go beyond simply calling 811, waiting on facility owner/operators to mark their facilities and digging safely.

Before accepting a project, it is important for construction contractors to know exactly what the scope, conditions and details of the project are. Particularly, when the project requires excavating in the vicinity of existing facilities on complex projects.

Beyond determining basic issues such as insurance requirements, liquidated and consequential damage clauses, good company fit, resource availability, and bonding requirements, there are underground utility safety and damage prevention issues the contractor should determine in advance of accepting a project. These items can be addressed in pre-bid meetings with the parties involved in a project from conception through reseeding present. Usually these parties include the project owner(s), design team and supporting entities. Addressing issues associated with complex projects should always start under the direction of the project owner in the planning stage.

A good place to start is to determine whether the project owner and design team are going to identify existing utilities on project plans and documents. Common Ground Alliance Best Practices include a chapter dedicated to Planning and Design. When followed, the Best Practices in this chapter go a long way to enhancing safety



“By identifying utilities in conflict with proposed excavation activities in the design stage, through subsurface utility engineering and other methods, it allows the designers to choose the path of least resistance for excavation activities.”

and helping ensure the project will proceed expeditiously with little delay from dealing with unknown existing utilities.

By identifying utilities in conflict with proposed excavation activities in the design



stage, through subsurface utility engineering and other methods, it allows the designers to choose the path of least resistance for excavation activities. It also allows contractors to properly prepare for those conflicts accordingly, well in advance of commencing excavation activities. In addition to enhancing safety this can save substantial costs throughout the life of the project. Instead of waiting until 3 days before excavation activities begin to know utility conflicts, addressing these issues on the front-end well in advance of commencing

excavation activities benefits all parties.

Some call centers offer complex project services where the project owners, designers and excavators work together from a single project management system to plan and coordinate damage prevention efforts. It is important to know if the local call center provides this service and the project owner will use it. Complex project services allow for enhance coordination and communication among all stakeholders, which is critical on projects



employing multiple contractors with multiple locate requests.

Among the many benefits of using complex project services is situational awareness among all stakeholders in the process. From project managers to the personnel in the field, safety and damage prevention awareness is integral to the project and all those involved in the project. The complex project service makes all facility owner/operators with facilities in the vicinity of excavation aware of the project circumstances, deadlines and scheduled activities. Owner/operators can plan their locating activities in concert with the project progress, helping them assign resources as absolutely necessary. This benefits all parties and helps avoid the pitfalls realized when a damage occurs.

These efforts go beyond the basic damage prevention process of submitting a locate request to a call center just a few days before commencing excavation activities. Coordination and communication between all parties helps to ensure public/workforce safety and help ensure the integrity of vital facilities. With the owners recognizing the



importance of a robust project-wide utility safety and damage prevention program on the front end of a project all parties benefit. Particularly, project owners who save when damages are avoided along with the burdensome follow-ups to responding to damages.

In the absence of complex project services being provided by the local call center it's important to know the project owner and designers are going to be active partners in the damage prevention process. Ask whether the project owner and designers are committed to addressing the safety and damage prevention elements of the project they can best take responsible for in the design stage. This includes determining utility owner/operators affected by the project and seeking information on the placement of those facilities. Many facility owner/operators will provide this information through the local call center or directly to a designer.

The bottom line is underground utility safety and damage prevention is a “shared responsibility,” as set forth by the Common Ground Alliance. Leaving the matter to one stakeholder or another only invites damages, compromises safety and threatens vital services. One of the best things an excavator can do to help enhance safety and keep damages to an ultimate minimum is to advocate for coordination and communication among all stakeholders and educate all, especially project owners, on the importance of working together. There are several means to accomplish this through local utility coordinating committees, call centers, regional Common Ground Alliance groups, and others. **ESD**

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Every year, tens of thousands of visitors travel great distances to look at ancient cave walls covered with markings that most of them can't decipher. The visitors know these symbols and drawings were a form of communication; at one time, they meant something important enough to write down but they're too primitive to be easily understood today.

Modern human communication is more sophisticated. Our written language allows for detailed messaging, and digital communication travels at speeds we couldn't imagine a few years ago. But still, sometimes a simple line, an arrow, a drawing, or a certain color does an important job.

When preparing a patient for a detailed and complex surgery, medical staffers help eliminate the possibility of error by marking the body part to be repaired or removed. Those simple marks have prevented lawsuits. Similarly, mistakes made by excavators need to be prevented, and simple methods of communication can do the trick IF everyone understands them.

In the business of underground utility safety, the challenge is to assure that any excavator, regardless of knowledge or experience level, can perform a safe and successful excavation after notifying the One Call Center and providing basic information on the proposed excavation.

When facility owners are made aware of an upcoming excavation, they typically rely on markings to communicate to the excavator where their underground facilities are located. They use codes, policies and industry standards to determine the color of the marks, symbols, abbreviations, dots, strikes, etc. that identify the types and locations of utilities so excavators can avoid them.

Yet in many situations, the excavator has no knowledge that a code, a policy or a standard even exists. They may as well be staring at a cave wall. And what happens next is easy to guess.

Whenever a facility is damaged, an investigator will seek a "root cause." This crucial process identifies the cause of the damage, determines who is ultimately liable for the damages and allows preventative actions



# Digging for Success: The Marks Mean EVERYTHING

BY JEFF MURRAY

to be taken. But significant contributing causes may go unconsidered, and some of them have to do with opportunities the parties involved did not pursue.

If the industry's goal is to prevent excavation damage, it is crucial that everyone involved in the process looks beyond the minimum requirements to avoid liability and considers every action they can take to prevent damage.

### The Excavator

State laws vary on actions required of excavators prior to excavating. One basic responsibility is to identify the precise location of the job, and this is not always convenient or easy. When a homeowner intends to remove a tree from the yard, it is easier

for the excavator to request "mark entire lot" and be done with it. But for the facility owner, this can be frustrating.

A "mark entire lot" order requires every facility touching that lot to be marked. Since the average residential lot has sewer, water, gas, phone, cable TV and electric service, this can be complicated. If the excavator simply identifies the tree to be removed, the facility owners can more easily determine whether their facilities need to be protected by markings.

Of course, nothing is protected by markings that aren't understood. We reminded our kids, "If you don't understand your schoolwork, ask questions!" But every year, underground facilities are damaged because



the excavator didn't understand the markings and failed to ask for clarification.

Just as a student needs to understand directions, an excavator must understand markings. And an excavator also has "homework;" a pre-excavation survey of the jobsite is essential. If the marks don't make sense or appear to be missing, the excavator has a duty to ask. A prudent excavator will also look for jobsite indicators to verify that the marks make sense. A gas meter, a streetlight, a pedestal — these are some common indicators. Marks on the jobsite should align with the indicators. When an excavator commences a job without understanding the marks and checking for indicators, the excavator and the public are both placed at risk.

### The One Call Center

Any good medical professional working with a patient accepts his or her responsibility to 1) outline the situation 2) list, in order, what needs to be done about it, and 3) explain what's probably going to happen next. Similarly, a One Call Center customer service rep has an opportunity to educate the caller and share information relevant to the request. This opportunity goes well beyond taking down information about the proposed excavation and passing it on to the facility owners. Public education messages include:

**1) What the excavator can expect the facility operator to do.**

**2) Does the excavator understand the markings? If not, the customer service rep can explain, or tell the caller where to find the information.**

**3) Does the excavator know what a flag means? The service rep can explain what to do with the flags during and after the excavation.**

**4) The rep can also explain how to determine the status of requested locate marks.**

Remember, it requires no specific education, no licensing and no training to be an excavator; people who perform this work need to be taught industry basics to perform safely. Opportunities to educate should never be overlooked.

### The Facility Owner

Imagine approaching a stoplight in your car. You're looking for information — red, green, yellow. An arrow, maybe. But the light is flashing a signal of green and red stripes. Confusing and annoying, right? But some facility companies place striped flags in the ground without any other form of communication. That flag can be just as confusing and annoying to an excavator as that streetlight is to you.

Our industry has standards that dictate symbols used in some common situations. To mark a corridor, a facility owner will commonly paint an "H" on the ground. This is a standard, acceptable form of communication — as long as the facility owner takes time to be sure that the excavator understands what it means. If the excavator doesn't understand the symbol, it's meaningless.

A facility owner has only partially marked a jobsite when he gets called away to do an emergency locate. He plans to return but does not notify the excavator. While he is gone, the excavator, seeing marks on the ground, assumes the area has been marked and makes the decision to begin working. At that moment, the excavator and the public are at risk.

And who is liable in case of damage? The excavator is liable because he didn't check the status of the marking request and discover that the facility owner had not completed the job. Granted, the facility owner should have notified the excavator directly, but the responsibility in this case belongs to the person who damaged the utility.



### Summary

In our industry, specific markings communicate the location of underground facilities. They're designed to prevent excavators from damaging gas, electric, water and other utilities, and to be effective, they need to be correct and timely. Markings alone may not be sufficient in every situation; when they're not, additional forms of communication must be provided. As an industry, we must help protect underground facilities, people and property by making sure our messages are clear, and that they are understood. **ESG**

# Aboveground Clues to Belowground Facilities

BY BOB NIGH SWONGER

**T**aking the time to perform a visual inspection of your excavation site is a key step in preventing unexpected encounters with unmarked underground facilities.

Prior to each departure, commercial airline pilots and their crew perform a detailed visual inspection of the aircraft inside and out. The pilot takes a walk around the outside of the aircraft as well, looking for any visual signs of damage, leaks or problems. The pilot and crew also check the operational controls and gauge settings. Flight attendants perform visual safety checks to ensure doors are closed and secure, all passenger seatbelts are fastened and all seats are in upright positions. The crew performs a safety briefing with passengers. The “all systems check” that is performed by the pilot and crew members reduce the chances of an unexpected surprise during the flight.

It is good to take the same care before you break ground on any excavation project. A close visual inspection of the planned dig site, by an excavator or excavation crew, can greatly reduce the chances of an unexpected surprise during excavation.

Your eyes and brain are very valuable damage prevention tools when both are applied before and during your excavation job. You can use them both to perform a topside visual survey to look for signs of buried utilities that are not identified by markings. Since



A few visual signs of ownership transfer points would be any visible utility meter (Gas, Electric and Water Meters), and any communication demarcation point normally located at the house protector or the entrance point of a building. The lines that feed these metering or transfer points belong to the service provider and should be marked up to this point by member utilities responding to your 811 notification. Any lines buried beyond the ownership transfer points will most often belong to the property owner and go unmarked by the utility owner.



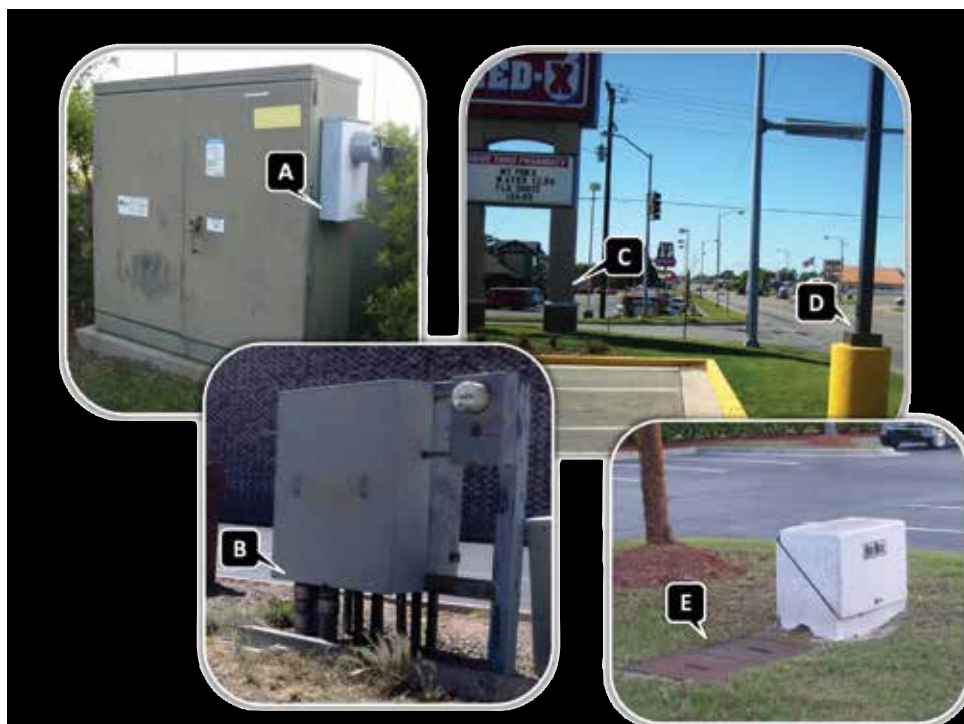
“Visually identify or otherwise determine the points of ownership transfer within each utility system on your planned dig site.”

the temporary markings are estimations of the path of buried lines, a visual confirmation is needed if digging near or across the marked line. This is done by safely exposing the marked lines and seeing them with your own eyes. In most states you are required to do this type of visual verification by using hand tools to expose the marked lines.

A good topside visual inspection of your dig site prior to breaking ground is key to preventing damage to public and private buried utilities.

Visually identify or otherwise determine the points of ownership transfer within each utility system on your planned dig





#### A. Meter on Transformer

The high voltage primary electric cable feeding this commercial should be marked up to the transformer. The high voltage secondary cables leaving the transformer normally will not be marked by the electric company's technician

#### B. Metered Electrical Panel

This specific electrical panel is located on the property line and is fed by a single underground power service line. From this point, six private electric lines are exiting and are buried throughout the property.

#### C. Commercial Business Sign

Fed by electric wire.

#### D. Parking Lot Light

Fed by electric wire.

#### E. Private Electric Splicing Box

Aboveground and lid to underground splicing vault. All of these lines are private and buried beyond the meter.

Here are a few signs of underground electric lines and a few points to consider when spotting these signs.



site. A few visual signs of ownership transfer points would be any visible utility meter (Gas, Electric and Water Meters), and any communication demarcation point normally located at the house protector or the entrance point of a building. These underground lines feeding the water, electric, natural gas and telecommunication networks belong to the service provider. The utility service providers mark the lines feeding these points in response to your call to 811. Any lines buried beyond the ownership transfer points will most often belong to the property owner and go unmarked by the utility owner.

#### Private Electric Cables and Wires

Keep an eye out for electric meters and any structures fed by underground electric wires. Look for electric meters near property lines, within the property, on the outside wall of a house or building or inside the building. The buried line feeding electricity to the meter points should be marked in response to your 811 call but the private electric lines buried "after the meter" will normally not be marked in response to your call to 811 notification.

#### Private Gas or Liquid Fuel Lines and Underground Fuel Tanks

Private underground fuel lines and fuel tanks are often located on residential and commercial properties that have a need for the product. The fuel line and fuel tank to the building, house or structure will most likely not be marked in response to your 811 call. The propane tanks and other fuel tanks may also be buried on your dig site and require extreme care when digging near the tank and the location of the fuel line should be identified. Look for signs of line entry to the house, basement or structure.

Propane Tanks are most often fed by delivery trucks and not a pipe. The tank itself being the source, the underground pipe placed from the tank to the house, building or structure is a service supply line. This line will most likely not be marked by the public utility locator. The tanks themselves are often buried so be on the lookout for metal lids or caps. These tanks are similar to underground fuel tanks at commercial gas stations that have buried pipes running from the tanks to the pumps.

#### Private Gas Service Lines

This particular set of gas meters is considered a multi-meter manifold. This metering point is fed by a single pipe from the gas company and has two separate private gas lines leaving this point to two different houses. Look for the round gas regulator. It will be placed on the supply side of the meter. Natural gas meters are located in the basements of buildings or houses, or on the outside wall, at the property line or at a master metering point of a multi-structure property.

#### Private Fire Protection Systems

The basic private fire water systems consist of water pipes buried from the municipal water tap or inlet point to the fire hydrants or other fire department connection points (FDC's) placed throughout the property. If your job is on commercial property, keep an eye out for fire hydrants and FDC points during your site inspection. The customer connection point will normally be located near the property line. The water pipe feeding this point will normally be marked by the public utility locator. Pipes that leave that point will not get marked.

## Private underground fuel lines and fuel tanks

are often located on residential and commercial properties that have a need for the product.



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## Private Water Lines, Fire Protection and Irrigation Systems, Chilled Water and Steam Systems

Private water systems are most commonly buried from the water metering to the building or house, from an irrigation tap to locations throughout a property. Private chilled water and steam systems are most often located on commercial properties, schools and universities.

### Pipeline Markers

Keep an eye out for high-profile pipeline markers. There are approximately 2 million miles of hazardous material pipelines in the US which provide bulk transportation of gasses and liquid fuels across our country. Many state and federal regulations require that pipeline operators must have a company representative onsite during excavation over or near their pipelines. The operators of these specific high-profile pipelines will normally contact you to make arrangements to be onsite during your excavation. After calling 811, make sure to monitor your email, fax, phone or voicemails for a meet request notification from the pipeline owner.

### Excavating Near Pipelines

## Private Fire Protection Systems

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If your job is on commercial property, keep an eye out for fire hydrants and FDC points during your site inspection.

A minimum clearance will normally be required between the pipeline and whatever is being installed. If heavy equipment or dump trucks will be crossing over the pipeline during your excavation, the pipeline operator may require the placement of large metal plates or

the addition of soil cover over the pipeline to prevent a potential hazardous damage caused by the extreme weight of the equipment.

### Reading The Landscape

On this page is a good example of how to read





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There are approximately 2 million miles of hazardous material pipelines in the US which provide bulk transportation of gasses and liquid fuels across our country.

the landscape prior to planned excavation. In this scenario I'm planning my work prior to calling 811. I've identified several notable signs of underground utilities belonging to public and private property owner at this location as well as a pipeline buried on or near this dig.

**A. THREE LARGE WATER VALVES** placed in a tee configuration which often indicates a tee in the water main which also means the water company probably poured concrete support or thrush blocker in the area the mains are connected.

**B. ONE TELEPHONE PEDESTAL** Telephone and CATV lines will normally be marked along the public easement and on private property to the building or house demarcation point. Look for the phone protector in the house, conduit on the wall of a building or inside equipment room of a building for signs of telephone cables.

**C. SEWER CLEAN OUT PIPE** located near roadside. This is a large diameter cleanout pipe and may possibly be part of a public system. Sewer cleanouts are most often placed on sewer laterals for access to clear drainage problems. The clean out pipe curves towards the flow of the sewer just before it connects to the top of the sewer lateral pipe. Look for sewer laterals to be located near buildings or houses as well as near property lines and other meter points.

**D. GAS METER** The service line from

meter to building will not be marked by public utility locator.

**E. EXPOSED PIPE ON SITE** may be an active line or may be an abandoned section of pipe. Further investigation will probably be necessary after the 811 call.

Other obvious signs of high-profile lines may be an electrical substation or water towers.

Look before you dig! A visual site inspection is a key part of any damage prevention plan. For safety's sake, take the time to inspect your dig site prior to excavation and daily during excavation activi-



How to read the landscape prior to planned excavation.



**F. TWO WATER METERS** The two service lines buried from water meter to building or house will not be marked by public utility locator.

**G. SEWER MANHOLE** This particular man-hole is placed over a public sewer main.

**H. PETROLEUM PIPELINE MARKER** This specific post indicates the presence of a petroleum transmission line and is considered a high-profile line. (Refer to page 18) Not pictured are nearby large petroleum storage tanks.

ties. Once the temporary markings are placed on the ground, it will be up to you to protect the integrity of the marks or call for a remark if your marks have been destroyed or are no longer reasonably visible for safe excavation. **ESB**

*Bob Nighswonger is the President of the Utility Training Academy and has been a line locator and damage prevention instructor for 32 years. He can be reached at [bob@utasearch.com](mailto:bob@utasearch.com)*



# Nulca Best Practices

BY RON PETERSON



Nulca, the organization for utility locating professionals, recognizes the critical role the locating function plays in the underground damage prevention process and that locators are essentially a limited resource. In order for those involved in damage prevention to better assure quality locates and more efficiently utilize the limited available locator resources, Nulca encourages parties to consider and adopt these best practices:

### **Project Builds**

Project managers should consider providing advance notice to the locator(s) involved with substantial projects (example: buildouts of fiber optic cable installations for entire communities); use non-disclo-

location resources based upon reasonable expectations.

### **Enforcement of Emergency Ticket Criteria**

Emergency tickets are a critical component in the overall underground damage prevention process. However, they frequently consume an oversized proportion of locate resources because they cannot be planned for and tend to disrupt normal locating operations.

### **Timing of Scheduled Emergencies**

Where practicable, the excavator should not schedule an emergency excavation at the start of a work day. Allowing for even

own website or the Nulca website.

- One Call systems should add a “page” on their website defining private utilities for its respective state and consider providing a method for private utility locating firms to add their contact information to a list of private facility locators. This could include links to the private utility locating firm’s website. If a web page cannot be added to the existing site, the system can provide a link to the Nulca website which contains an extensive listing of companies involved in private facility locating.

### **Virtual White-Lining**

Over-notification and the likelihood of mis-notification of the intended area of excavation can almost certainly be reduced if the communication throughout the system – from excavator, to notification center, to facility operator, to locator – includes virtual white-lining of some sort depicting a map of the actual intended area of excavation.

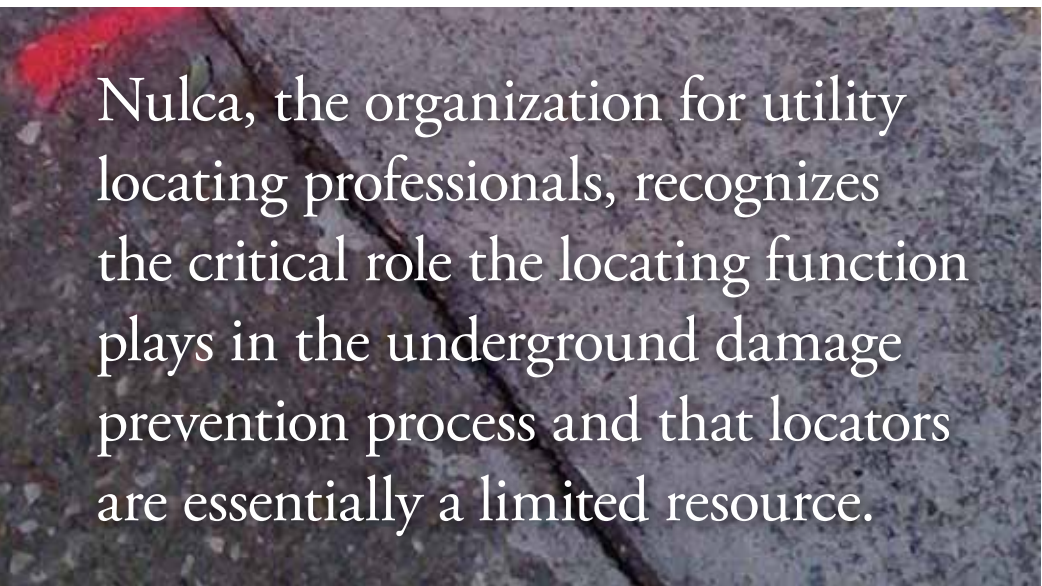
### **GPS General Location Data**

Notification centers should consider adding GPS location data to tickets being supplied to locators. Excavation location should be identified by latitude/longitude, U.S. National Grid, and/or other GPS location information in addition to common street address to assist in verifying location, as well as the locator’s route planning and assignment of locating work.

### **Standardization of One Call Laws and Processes**

It would be beneficial to both locators and excavators if, where possible, One Call systems could standardize processes across the country. Wait times, ticket life, tolerance zones and size of tickets, for example, often change across state lines. This makes it difficult for both locators and excavators when trying to mobilize staff to other areas.

Nulca realizes that these are not new suggestions in many cases. We further realize that the locating industry must live up to its responsibilities within the framework provided. We also understand that damage prevention will only improve when all parties are communicating with one another and working together. **ESG**



Nulca, the organization for utility locating professionals, recognizes the critical role the locating function plays in the underground damage prevention process and that locators are essentially a limited resource.

sure, confidentiality agreements with the locator to assure continued confidentiality of the proposed project; give two to four months advance notice of general location and extent and type of anticipated work, which will assist a locator in planning resource allocation, and the information may remain general enough to safeguard proprietary competitive information.

### **Ticket Volume Thresholds for Extended Locate Time**

States and One Call systems should consider authorizing a rolling per day ticket threshold. Once the threshold ticket count is exceeded for a day, any excess volume will count towards the next business day’s ticket threshold and the excavation start date would be extended to the next day accordingly. This would allow for pacing of

modest additional normal work hour time for locating fosters better quality locates.

### **Private Utilities**

Nulca recognizes that the private utility sector is vastly underserved within the excavation notification systems across North America. The “One Call process” currently notifies public member companies, leaving many users with the impression that all utilities on site have been located. Nulca suggests the following techniques to enhance the process to prevent utility damages:

- One Call systems should add a message to system users that private utility lines may exist on excavation sites and refer them to an appropriate location to obtain further information. This location could be on the One Call system’s

# Understanding the Marks: Locating and Marking Practices

TAKEN FROM CGA BEST PRACTICES 16.0

## Operator markings of facilities include the following:

- The appropriate color for their facility type
- Their company identifier (name, initials, or abbreviation) when other companies are using the same color
- The total number of facilities and the width of each facility
- A description of the facility (HP, FO, STL, etc).

## Use paint, flags, stakes, whiskers, or a combination to identify the operator's facility(s) at or near an excavation site.

1. Marks in the appropriate color are approximately 12 in. to 18 in. long and 1 in. wide, spaced approximately 4 ft to 50 ft apart. When marking facilities, the operator considers the type of facility being located, the terrain of the land, the type of excavation being done, and the method required to adequately mark the facilities for the excavator. (Illustration 1)

2. The following marking examples illustrate how an operator may choose to mark their subsurface installations:

- a. Single Facility Marking:** Used to mark a single facility. This can be done in one of two ways • placing the marks over the approximate center of the facility. (Illustration 2a1) or • placing the marks over the approximate outside edges of the facility with a line connecting the two horizontal lines (in the form of an H) to indicate there is only one facility. (Illustration 2a2)

These examples indicate an operator's 12 in. facility. When a facility can be located or toned separately from other facilities of the same type, it is marked as a single facility.<sup>41</sup>

- b. Multiple Facility Marking:** Used to mark multiple facilities of the same type (e.g., electric), where the separation does not allow for a separate tone for each facility,

but the number and width of the facilities is known. Marks are placed over the approximate center of the facilities and indicate the number and width of the facilities. **Example:** four plastic facilities that are 4 in. in diameter (4/4" PLA). (Illustration 2b)

**c. Conduit Marking:** Used for any locatable facility being carried inside conduits or ducts. The marks indicating the outer extremities denote the actual located edges of the facilities being represented. **Example:** four plastic conduits that are 4 in. in diameter (4/4" PLA), and the marks are 16 in. apart, indicating the actual left and right edges of the facilities. (Illustration 2c)

**d. Corridor Marking:** Used to mark multiple facilities of the same type (e.g., electric), bundled or intertwined in the same trench, where the total number of facilities is not readily known (operator has no record on file for the number of facilities). Marks are placed over the approximate center of the facilities and indicate the width of the corridor. The width of the corridor is the distance between the actual located outside edges of the combined facilities. **Example:** a 12 in. corridor (12" CDR). (Illustration 2d)

Illustration 1

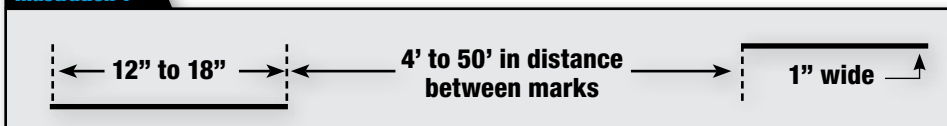


Illustration 2a1

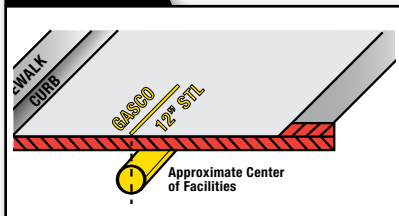


Illustration 2a2

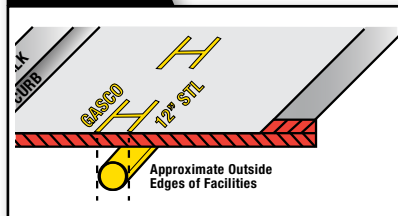


Illustration 2b

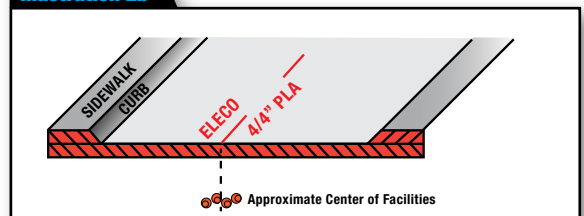


Illustration 2c

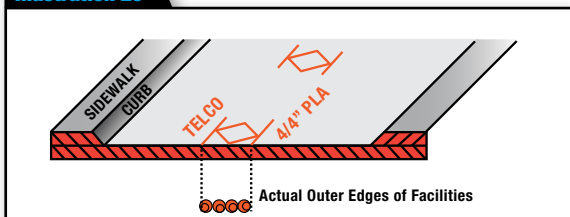
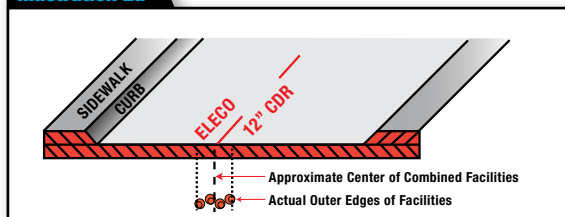


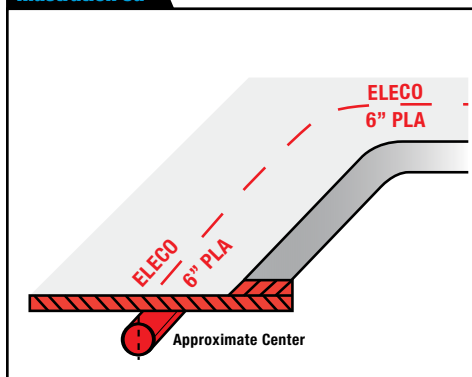
Illustration 2d





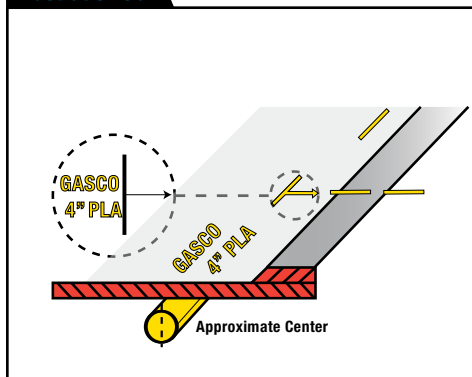
3. Changes in direction and lateral connections are clearly indicated at the point where the change in direction or connection occurs, with an arrow indicating the path of the facility. A radius is indicated with marks describing the arc. When providing offset markings (paint or stakes), show the direction of the facility and distance to the facility from the markings. **Example:** radius (Illustration 3a)

**Illustration 3a**



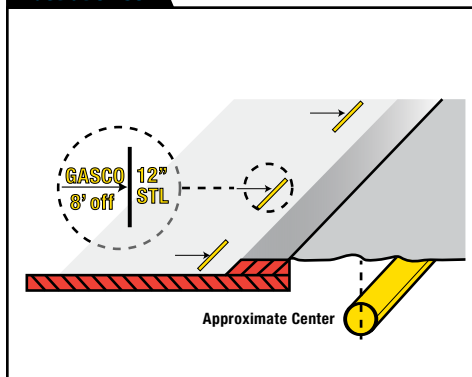
**Example:** lateral connection (Illustration 3b)

**Illustration 3b**



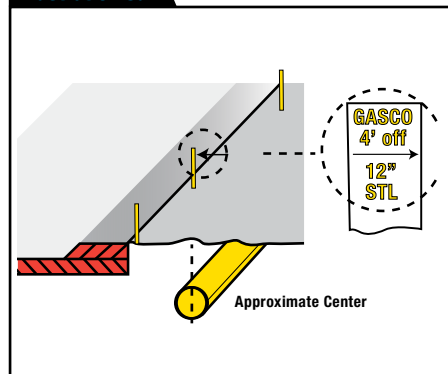
**Example:** painted offset (off) (Illustration 3c)

**Illustration 3c**



**Example:** staked offset (off) (Illustration 3d)

**Illustration 3d**



4. An operator's identifier (name, abbreviation, or initials) is placed at the beginning and at the end of the proposed work. In addition, subsequent operators using the same color mark their company identifier at all points where their facility crosses another operator's facility using the same color. Reduce the separation of excavation marks to a length that can reasonably be seen by the operator's locators when the terrain at an excavation site warrants. **Examples:**

CITYCO    ELECO    TELCO

5. Information regarding the size and composition of the facility is marked at an appropriate frequency. **Examples:** the number of ducts in a multi-duct structure, width of a pipeline, and whether it is steel, plastic, cable, etc.

TELCO    GASCO    WATERCO  
9/4\"/>

6. Facilities installed in a casing are identified as such. **Examples:** 6 in. plastic in 12 in. steel and fiber optic in 4 in. steel.

GASCO    TELCO  
6\"/>

7. Structures such as vaults, inlets, and lift stations that are physically larger than obvious surface indications are marked so as to define the parameters of the structure. **Example:**



8. Termination points or dead ends are indicated as such. **Example:**



9. When there is "No Conflict" with the excavation, complete one or more of the following:

- Operators of a single type of facility (e.g., TELCO) mark the area "NO" followed by the appropriate company identifier in the matching APWA color code for that facility. **Example:** NO TELCO

- Operators of multiple facilities mark the area "NO" followed by the appropriate company identifier in the matching APWA color code for that facility with a slash and the abbreviation for the type of facility for which there is "No Conflict." **Example:** NO GASCO/G/D illustrates that GASCO has no gas distribution facilities at this excavation site. The following abbreviations are used when appropriate: /G/D (gas distribution); /G/T (gas transmission); /E/D (electric distribution); /E/T (electric transmission).

- Place a clear plastic (translucent) flag that states "No Conflict" in lettering matching the APWA color code of the facility that is not in conflict. Include on the flag the operator's identifier, phone number, a place to write the locate ticket number, and date. Operators of multiple facilities indicate on the flag which facilities are in "No Conflict" with the excavation (see the previous example).

- If it can be determined through maps or records that the proposed excavation is obviously not in conflict with their facility, the locator or operator of the facility may notify the excavator of "No Conflict" by phone, fax, or e-mail, or through the One Call Center, where electronic positive response is used. Operators of multiple facilities indicate a "No Conflict" for each facility (see the previous examples).

## COLOR CODE IDENTIFIERS

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 Line, Cables, or Conduit
BLUE	Potable Water
PURPLE	Reclaimed Water, Irrigation, and Slurry Lines
GREEN	Sewers and Drain Lines

## FACILITY IDENTIFIER

CH	Chemical	E	Electric
FO	Fiber Optic	G	Gas
LPG	Liquefied Petroleum Gas	PP	Petroleum Products
RR	Railroad Signal	S	Sewer
SD	Storm Drain	SL	Street Lightning
STM	Steam	SP	Slurry System
SS	Storm Sewer	TEL	Telephone
TS	Traffic Signal	TV	Television
W	Reclaimed Water "Purple"	W	Water

## UNDERGROUND CONSTRUCTION DESCRIPTIONS

C	Conduit	CDR	Corridor
D	Distribution Facility	DB	Direct Buried
DE	Dead End	JT	Joint Trench
HP	High Pressure	HH	Hand Hole
MH	Manhole	PB	Pull Box
R	Radius	STR	Structure (vaults, junction boxes, inlets, lift stations)
T	Transmission Facility		

## INFRASTRUCTURE MATERIAL

ABS	Acrylonitrile - Butadiene - Styrene	ACP	Asbestos Cement Pipe
CI	Cast Iron	CMC	Cement Mortar Coated
CML	Cement Mortar Lined	CPP	Corrugated Plastic Pipe
CMP	Corrugated Metal Pipe	CU	Copper
CWD	Cresote Wood Duct	HDPE	High Density Polyethylene
MTD	Multiple Tile Duct	PLA	Plastic (conduit or pipe)
RCB	Reinforced Concrete Box	RCP	Reinforced Concrete Pipe
RF	Reinforced Fiberglass	SCCP	Steel Cylinder Concrete Pipe
STL	Steel	VCP	Vertrified Clay Pipe

- Place "No Conflict" markings or flags in a location that can be observed by the excavator and/or notify the excavator by phone, fax, or e-mail that there is "No Conflict" with your facilities. When the excavation is delineated by the use of white markings, place "No Conflict" markings or flags in or as near as practicable to the delineated area.

Caution: Allow adequate space for all facility mark-outs.

"No Conflict" indicates that the operator verifying the "No Conflict" has no facilities within the scope of the delineation; or when there is no delineation, there are no facilities within the work area as described on the locate ticket. **Example:**



## Guide for Abbreviation Use

Follow these guidelines when placing abbreviations in the field:

- Place the Company Identifier at the top or at the left of the abbreviations.
- Place the abbreviations in the following order: Company Identifier / Facility Identifier / Underground Construction Descriptions / Infrastructure Material. **Example:** TELCO/TEL/FO/PLA indicates that TELCO has a telecommunication fiber optic line in a single plastic conduit. The use of the abbreviation /TEL is not necessary, because the orange marking would indicate that the facility was a communication line; but its use is optional.
- To omit one or more of the abbreviation types, use the order described above but omit the slash and abbreviation that does not apply. **Example:** to omit /TEL, the result would be TELCO/FO/PLA. **ESB**



When California's 2016 Dig Safe Act closed loopholes on hand tool use requirements in the tolerance zone, unintended safety consequences followed. Excavators found themselves choosing between protecting their workers or complying with the law. But new safety regulations proposed by lawmakers and implemented by the Dig Safe Board, aim to change that by allowing certain powered tools to be used in the tolerance zone prior to locating underground facilities while creating a process that pro-

the only exception. The move came as an effort first to address a misconception in the field that handheld power tools, such as jackhammers, qualified as hand tools, and second to close a loophole for avoiding the safest possible option—hand tools. However, when lawmakers eliminated the power tool option, they unknowingly banned other useful tools and inadvertently put worker safety at risk.

It's easy to assume that protecting California's underground infrastructure

more likely and by required more bending, lifting, and twisting of the worker's body. California found itself facing an unintended conflict between protecting the state's underground infrastructure and protecting the health and safety of the state's labor force.

### **"Sure, We Use Hand Tools" (Wink, Wink)**

Following the new ban, many excavators and operators continued using the tools now considered illegal. Forced to choose be-



## **POWER TOOLS** **in the tolerance zone:** **California's Unique Solution to Improve Safety by Promoting Open Communication**

BY KERSTIN LOCK TOMLINSON

motates open communication between excavators and facility owners.

### **Worker Safety and Infrastructure Safety at Odds?**

Prior to 2016, California's excavators had the option to use power tools to find the exact location of a facility, so long as they had permission from the facility owner. The passage of the Dig Safe Act both defined a hand tool and removed the option of obtaining operator permission to use anything else, preserving vacuum excavation as

by extension automatically protects worker safety. However, industry representatives from around the state quickly began to sound the alarm on worker safety issues arising due to the stronger restriction on power tools. Both excavators and operators reported that blunt-edged hand tools were ineffective in certain soil conditions, forcing them to turn to sharp tools, such as pickaxes or digging bars. The force required to proceed with these sharp tools endangered workers by making a facility puncture

tween compliance and realities in the field, their power tool use went into hiding, along with any potential consequences. But hiding in the shadows is not good for safety. To remedy this issue, lawmakers passed a bill in 2018 to reopen the door on power tool use in the tolerance zone. This time though, the state's new Dig Safe Board was in place, and the Legislature asked the Board to produce regulations implementing the change.

Just how common this particular violation

of the law is became more clear as the Board worked to gather feedback to develop regulations on power tool use. At a public workshop in Sacramento, one company brought different examples of hand and power tools to show Board members and staff the challenge excavators face controlling where a hand tool lands near an underground facility when it is struck into the earth, versus what happens when a handheld power tool is used. The shiny new pickaxe had tags still attached, while several

to define tool specifications that could be followed without also requiring permission from the facility owner.

### Bridges Built by People, Not Tools

By shining light on the industry's need for tools that are both effective and safe, the Board also began to see just how dysfunctional communication could be between excavators and operators in the field. Excavators voiced their frustrations with getting tied up in company phone trees and told the Board they are even

In response, the Board required both excavators and operators to provide current and effective contact information to each other via the One Call centers. Secondly, the Board designed a process to address situations where none of the approved tools will work to get the job done. Such scenarios have the potential to create pressure for excavators to forge ahead with heavier equipment, especially if they are unable to reach an operator to discuss the problem. For that reason, not only will excavators be required to reach out in such cases to the facility owner to determine a path forward, but the facility owner will also be required to respond to the excavator's concerns within two working days. Should the excavator and operator agree that heavier tools are warranted and can be used safely, both will document their understanding in writing. By recognizing the impact both excavators and facility owners have on outcomes in the field, the Board's regulations create a balanced process that promotes shared responsibility for safety.

### Show Me the Data

With a process established and set to take effect July 1, 2020, the Board is looking ahead to the future. The biggest challenge to measuring the effectiveness of these regulations is the current lack of public information. Damage data has been largely collected and managed privately by each facility owner for their own business purposes. This makes it difficult for the Board to establish a baseline understanding of the risks posed by working with the various tools commonly used to expose underground facilities. Instead, the Board will rely on information collected through its investigations, damage reporting requirements, and feedback from its stakeholders to evaluate whether the process established in its regulations is working as intended.

California is the only state that has defined field conditions and tool specifications to a degree that allows an excavator to use a power tool in the tolerance zone prior to the positive location of an underground facility. The Board believes its solution will be successful in improving safety and working conditions across the state, and hopes processes like these that emphasize fairness, promote working relationships, and foster open communication can be a model for other safety regulators. **ESG**



pneumatic clay spades were covered in dirt and dust. Meanwhile, feedback through a pair of online surveys produced by the Board further verified that excavators and operators were coming together to violate the current hand tool requirement. To address this issue, the Board engaged with the industry to identify tool options that address difficult soil conditions and worker fatigue and injury without increasing the risk to buried facilities. By bringing both sides of the industry together, the Board was able

forced to escalate issues in the field just to get a response from the facility owner. On the operator side, facility owners voiced concerns that the newly allowed powered tools may indicate situations where operators need to explain special field considerations to the excavator. Operators worried they might not have effective information to quickly reach an excavator who knows what is happening at the worksite. These concerns spoke directly to the Board's experience that suppressing communication inhibited safety performance.





## The Best Excavation Method:

# HYDRO AIR OR BOTH?

The old days of open cutting along roadways to install underground utilities are a thing of the distant past. Especially in developed urban areas, underground rights-of-way are already congested with fiber, gas, electric, water and sewer lines.

This presents a challenge for horizontal directional drilling (HDD) projects to install new utilities and has led to an industry-wide best practice of underground construction operators exposing all nearby utilities before boring.

The most effective and efficient way of doing this is through vacuum excavation. This process is quickly becoming the norm and, in many circumstances, required by contractors and municipalities. It is not a new process, but as vacuum excavators become more prevalent on jobsites, manufacturers are trying to meet the ever-changing needs of contractors and utility owners with the evolution of their machines.

Today, vacuum excavators can be customized with many debris and water tank combination options, utilizing either air or water, to fit the need of virtually any sized job. With a range of options, it's important for contractors to understand the different offerings to determine which unit will deliver the most value to their projects.

When choosing between hydro or air excavation, contractors should consider many factors. Depending on the soil conditions, disposal requirements in the region and some other variables, one method may be more suitable than the other.

### Hydro excavation

Hydro excavation uses pressurized water to do the dirty work. It is the most widely accepted form of soft excavation, because it can be used in a range of soil conditions, including tightly compacted and hard soil.

Because hydro excavation requires operators to dispose of liquid spoils and replenish water sources while on a job, selecting the proper digging nozzle and following best practices for water conservation are of utmost importance. Contractors need to consider the distance to a spoils disposal site and associated costs.



"Today, most equipment manufacturers design vacuum excavators with both air- and hydro-excavation capabilities."

Pressurized water typically exposes utilities faster than air. The ability to conquer various soil conditions quickly and efficiently makes hydro excavation the preferred method for many contractors.

### Air excavation

Air excavation allows operators to break up soil with compressed air and vacuum dry spoils, which can be reused onsite as backfill. This method works best on softer soils, such as topsoil, loamy sand and some clay formations.

Unlike hydro excavation, which requires access to water, air excavation keeps machines running and operators on the jobsite without having to make trips to acquire water or dispose of liquid spoils. Additionally, many operators are turning to air excavation on jobsites as restrictions on liquid spoils disposal tighten and certified disposal sites become more difficult to find.

Operators need to keep in mind the soil conditions of the jobsite before deciding to use air excavation exclusively.

### Combination of hydro and air excavation

Operators don't have to choose between hydro or air excavation; they can use a combination of methods on jobs. For example, they can start excavating the ground surface with air and switch to hydro once they reach harder soil formations. The water will cut through the clay and be sucked into the spoils tank to mix with the dry spoils from the air excavation. In most cases, this combination of spoils will pass a filter test and be permissible for backfill.

Today, most equipment manufacturers design vacuum excavators with both air- and hydro-excavation capabilities. This gives operators the flexibility to adapt to changing jobsite conditions and effectively perform in a full range of soils.

### Maintain jobsite safety and productivity

Using both air and hydro excavation in compliance with best practices will also provide the lowest chance of damaging a utility. Operators can apply these best practices to limit unanticipated costs and maintain productivity on all excavation jobs:

#### 1. CONTINUOUS MOVEMENT OF THE NOZZLE

For both air and hydro excavation, operators should constantly move the nozzle around within the excavation area. This prevents excessive pressure from consistently hitting a specific area, preventing damage and keeping excavation moving along. Hydro-excavation operators should use a rotating nozzle, also known as an oscillating nozzle, to deliver a stream of circulating water rather than a direct spray.

#### 2. REMAIN 8 INCHES FROM THE UTILITY AND OUT OF THE DIRT

Holding the nozzle too close to the utility increases the risk of damage. Operators should keep the nozzle 6 to 8 inches from the utility.

Additionally, the nozzle should never impact the soil or be used as a shovel or pry bar. While it may seem convenient, this can clog the nozzle and decrease efficiency. When using an air excavator, it's even more important

to avoid putting the nozzle in the ground, as cleaning dirt out of the nozzle can be more challenging with air excavators.

If you're struggling to expose utilities in hard soil or heavy clay, hot water heater packages are an option with most vacuum excavators. Using hot water can help break down clay without applying additional water pressure. However, operators should keep the temperature below 150 degrees Fahrenheit and reduce water pressure to avoid damaging utilities.

### 3. DON'T EXCEED 3,000 PSI

The recommended pressure for soft excavation is 3,000 psi. Although many vacuum excavators and nozzles offer higher psi capabilities, too much pressure can damage utilities. The pressure should be reduced even further if using heated water. Utility owners often have their own recommended water pressure, so operators should always check with owners for specific guidance.

Vacuum excavation can be a helpful asset on a range of underground construction projects. With new applications for vacuum excavation on the rise, the machines will only continue to grow in popularity. Understanding the different vacuum excavation methods and best practices will help operators ensure jobsite safety, improve efficiency and increase productivity on a variety of projects. **ESG**

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Choosing to be a responsible driller by having proper procedures and - equally important - choosing to follow those procedures, is up to owners and operators. To help mitigate the risks of damaging an underground utility, procedures must include the following best practices, at a minimum.

#### **Plan the bore.**

Planning the work is critical and must be part of the process for horizontal directional drilling projects. Thorough planning and preparation before beginning work can prevent unforeseen problems. Include the following:

- Determine existing underground facilities
- Obtain right-of-way and geological information
- Map the planned installation
- Consider clearance requirements, vertical and horizontal, of existing facilities
- Consider
  - size of pullback tools
  - bend radius of pipe and product
  - ability to track the bore
  - ability to expose existing utilities

- surface structures for drill placement and setback requirements

#### **Maintain two-way communication.**

A drill operator relies entirely on the tracker to provide the feedback needed to successfully drill around obstructions. The tracker relies on the operator to use the information to steer clear of hazards. They must collaborate and be on the same page regarding drilling responsibly and safely. Because the tracker and operator must be able to communicate at all times, having a two-way radio or other form of communication is essential for HDD operations.

#### **Locate, locate, locate, then verify.**

Locating procedures should include marking the proposed excavation with white paint (also known as white-lining) before calling for utility locates. Directional drilling jobs cover a long area in one shot. To effectively locate, the locator needs to know exactly where the bore has been planned. In 2018, approximately 71,000 damage events (21% of total)

were linked to poor locating practices (CGA). So, even after a locate has been completed, the contractor must observe the area and look for signs of any utilities that may have been missed. Know all the utilities that should be expected for building service and ensure they have all been accounted for. Additionally, utility maps should be referenced to determine which utilities are expected to be in the area and their approximate location. It is important for drillers to have locating equipment available to verify locates.

#### **Find the sewer lines.**

To avoid a dangerous situation known as a sewer cross bore, sewer lines must be located using methods such as sewer beacon locators or ground penetrating radar. They must either be exposed and treated like any other facility, or they must be inspected after boring is complete, especially if installing a gas or electric line.

#### **Observe tolerance zones.**

Tolerance zones around locates should

always be observed. Depending on the state, an 18"-36" tolerance zone is required on each side of the located utility. Only hand digging or soft excavation, such as vacuum excavation, can be used inside the tolerance zone. Consider horizontal and vertical tolerances when drilling near utilities.

## 6. Expose the line – depths should never be assumed.

Depths are rarely given by locators, but if they are, operators should always assume it is an estimate and should expose the line using a vacuum excavator or hand digging. Accuracies can vary between various locating equipment used. The only sure way to know the exact depth is to expose it. It is not sufficient to expose in only one location to determine the depth of the entire utility. The depth of utilities can change along a line. The utility must be exposed every time, even if it is under concrete and even if the operator thinks he knows the depth.

Note: If the utility cannot be found or is too deep to expose, the facility owner must be contacted to develop an acceptable plan before drilling.

**Don't adopt "just drill deeper" as a rule.** When drilling in a congested area, it is tempting to just go deeper than everything

else. This may seem like an easy answer to try to miss everything. However, this is not a perfect solution because utility locators typically cannot locate lines accurately much deeper than 10 feet. So, you may think you are clear, but there may be a utility that was too deep to be detected by the locator. Also, the new utility that you just installed may not be detected next time someone locates utilities in the area.

## Setup for success.

Successful drilling depends on setup. HDDs must be set up in a position that will allow the anchors to be driven outside of tolerance zones. Also, a bore path calculator should be used to determine the minimum setback distance and entry pitch needed with the pipe bend radius to be able to bore underneath obstacles directly in front of the drill.

## Take additional precautions when drilling parallel.

When drilling parallel to underground utilities, additional precautions must be taken – more frequent potholing/daylighting is needed to verify the location of the utility and more frequent tracking of the drill head is needed to ensure that the tolerance zone is not encroached. Follow local guidelines

*Note: this may be adjusted depending on the depth of the bore relative to the depth of the utility.*

If drilling parallel within...	Expose existing utility	Track drill head
3' of existing utility	beginning & end of bore & every 50'	every 5'
5' of existing	beginning & end of bore & every 150'	every 10'

for tracking and exposing utilities when drilling parallel to an existing utility. If no local guidelines exist, use:

## Watch the crossing.

A utility should not be crossed without a spotter, in communication with the operator, watching the crossing, while drilling and backreaming. Utilities can be nicked by a backreamer even if the drill head cleared it.

## Consider the backream.

The width of the backreamer must be considered when creating the bore plan. An operator may be far enough outside the tolerance zone while drilling, but the additional width of a backreamer could put it inside the tolerance zone on the pullback. Also, consider that the backream may not pull back directly centered in the pilot bore.

## Always track the bore.

The bore must always be tracked through surface tracking or wireline. Even on short bores or if going back into a previous bore hole. The drill string must be pulled back to the drill anytime the ability to track is lost, including when the beacon batteries die or the drill string breaks. While drilling, the drill head must be tracked at least every half to full length of pipe, and more often depending on underground congestion in the area. Each tracking location should be marked and progress should be checked to ensure the bore is staying on the intended path.

## Create an "as-built" record.

Contractors should create an "as-built" map to indicate the actual location of the installed product for future reference. Tracking electronics provide the capability of logging the tracker readings which can be logged and saved for each job. This is a good practice for creating maps and for future reference, if needed. **ESG**

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# Pipeline Location Information

## PIPELINE MARKERS

Pipelines are buried in areas called rights-of-way. Pipeline markers are used to designate the general route of the pipeline. Markers can also be found where a pipeline crosses a street or railroad, emerges from the ground, or in waterways.

**BE AWARE:** Pipeline markers will not designate the exact location, depth or number of pipelines in the area. Markers come in different shapes and sizes, but will always:



Include the word **WARNING, DANGER OR CAUTION**

Identify the material being transported

Provide a number to reach the company in event of an emergency

Provide the name of the pipeline company

**Gathering** pipelines are normally located in rural areas and transport crude oil or natural gas from wellheads and production facilities to processing facilities where the oil, gas and water are separated and processed.

**Transmission** pipelines move refined liquid products and natural gas from refineries to marketing and distribution terminals typically using larger diameter, high-pressure lines. The general location of all transmission pipelines can be viewed in the National Pipeline Mapping System at [www.npms.phmsa.dot.gov](http://www.npms.phmsa.dot.gov)

**Distribution** pipelines are normally located in populated areas and carry natural gas or propane from a transmission pipeline or storage facility directly to residential and industrial customers. Some companies have included the location of their pipelines in a mobile friendly web application called Pipelines Nearby, which can be accessed at [www.pipelinesnearby.org](http://www.pipelinesnearby.org)

## MARCADORES DE TUBERÍA

Las tuberías son enterradas en áreas llamadas derecho de paso (ROW por sus siglas en inglés). Los marcadores de tubería se usan para designar la ruta general de la tubería. Los marcadores también pueden ser encontrados donde una tubería cruza una calle o riel de tren, donde sale del suelo, o en vías navegables.

**ESTÉ CONSCIENTE:** Los marcadores no dan la ubicación exacta, profundidad ni número de tuberías en el área. Los marcadores vienen en diferentes formas y tamaños, pero siempre incluyen:



Incluye la palabra **WARNING, DANGER OR CAUTION** (aviso, peligro o precaución)

Identifica el material siendo transportado

Da el número de la compañía en case de emergencia

Da el nombre de la compañía de tubería

Tuberías **Recolectoras** están situadas en zonas rurales y transportan normalmente petróleo crudo o el gas natural de manantiales y de instalaciones de producción a centros de procesamiento donde se separan y se procesan aceite, gas y agua.

Las tuberías de **Transmisión** mueven productos y gas natural líquidos refinados desde refinерías a terminales comerciales y de distribución típicamente usando líneas de alta presión con diámetro más grande. La ubicación general de todas las tuberías de transmisión se puede ver en el sistema de trazado nacional de tubería en [www.npms.phmsa.dot.gov](http://www.npms.phmsa.dot.gov)

Las tuberías de **Distribución** están situadas en áreas pobladas y llevan normalmente el gas natural o propano de una tubería de transmisión o instalación de almacenamiento directamente a clientes residenciales e industriales. Algunas compañías han incluido la ubicación de sus tuberías en una aplicación web móvil llamada Pipelines Nearby, que puede ser accedida en [www.pipelinesnearby.org](http://www.pipelinesnearby.org)

# Pipeline Products & Facilities

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



**PETROLEUM GAS** is a mixture of gaseous hydrocarbons, primarily propane, butane and ethane. These products are commonly used for cooking, heating and other industrial applications. They are easily liquefied under pressure and are often stored and transported in portable containers labeled as Liquefied Petroleum Gas (LPG). When transported in transmission pipelines they may also be identified as Highly Volatile Liquids (HVLs) or Natural Gas Liquids (NGLs). Vaporized LPG may also be found in smaller gas distribution systems. Typically, LPG is a tasteless, colorless and odorless gas. When transported via transmission pipelines it normally will not have odorant added. Odorant is added when LPG is offloaded to a distribution pipeline system or transport tanks to facilitate leak detection. Ethylene and propylene

do have a faint natural odor like petroleum.

**PETROLEUM LIQUIDS** is a broad term covering many products, including: crude oil, gasoline, diesel fuel, aviation gasoline, jet fuel, fuel oil, kerosene, naphtha, xylene and other refined products. Crude oil is unrefined petroleum that is extracted from beneath the Earth's surface through wells. As it comes from the well, crude oil contains a mixture of oil, gas, water and other impurities, such as metallic compounds and sulfur. Refinement of crude oil produces petroleum products that we use every day, such as motor oils and gasoline. Crude oil is transported from wells to refineries through gathering or transmission pipelines. Refined petroleum products are transported in transmission pipelines to

rail or truck terminals for distribution to consumers. Odorant is not added to these products because they have a natural odor.

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

**CARBON DIOXIDE** is a heavy gas that is normally transported in transmission pipelines as a compressed fluid. It is a naturally occurring, colorless, odorless and tasteless gas used in the petroleum industry. Under normal conditions, carbon dioxide is stable, inert and nontoxic. However, it can act as an asphyxiant.

**ETHANOL** (also called ethyl alcohol) is a colorless liquid that is widely used as an additive to automotive gasoline. It may be transported in buried transmission pipelines. Ethanol has a natural odor like gasoline and will easily mix with water.

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

**"SOUR" CRUDE OIL AND "SOUR" GAS** refer to products containing high concentrations of sulfur and hydrogen sulfide. Products containing little or no sulfur are often referred to as "sweet". Hydrogen sulfide (H<sub>2</sub>S) is a toxic, corrosive contaminant found in natural gas and crude oil. It has an odor like the smell of rotten eggs or a burnt match. Exposure to relatively low levels of hydrogen sulfide (500 ppm) can be fatal. **ESB**





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

# DIRECTRICES PARA REACCIONAR EN EMERGENCIAS

PÓSTER DE SEGURIDAD PROVEIDO POR PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

## CONOZCA LOS PELIGROS

- El gas natural y otros productos de petróleo son inflamables y queman. Si la piel está expuesta, serias irritaciones pueden ocurrir. Los gases escapados pueden desplazar el oxígeno.
- La electricidad hará descargas o cortocircuito a tierra produciendo temperaturas que son cuatro veces más intensas que la temperatura del sol. Como mínimo quemaría la piel y dañaría los órganos internos. Los altos voltajes de electricidad pueden hacer arco a distancias considerables a través del aire. Usted debe estar consiente de cables aéros de alto voltaje y aleje cualquier parte del equipo por lo menos a 10 pies de distancia de los cables aéreos.
- El agua a alta presión pueden causar heridas graves. Las aguas residuales contienen bacterias que puede ser de alto riesgo para la salud. Los gases del alcantarillado son inflamables y queman.

## RECONOZCA LAS CONDICIONES PELIGROSAS

- Los charcos de líquido, la tierra soplando, los sonidos siseantes, las nubes de vapor, los olores a gas, las burbujas en agua estancada, la vegetación completamente seca, y la tierra congelada o hielo alrededor de gasoductos/oleoductos son todas señales de escapes de gas natural o petróleo y deben de ser tratadas como una emergencia.
- Trate el contacto con cualquier cable eléctrico como una emergencia sin tener en cuenta si aparece dañado o no o si está cortado. Esto incluye el contacto con cables aéreos de alto voltaje.
- Con frecuencia los servicios usan zanjas conjuntamente poniéndolo a usted en un mayor riesgo en las zanjas que también tienen electricidad.
- La tierra mojada o descolorida es un indicio de un escape de agua/alcantarillado y debe ser tratada como una condición de emergencia potencial.

# EXCAVATION EMERGENCIES



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

# SAFETY POSTER

PROVIDED BY PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

## KNOW THE HAZARDS

- Natural gas and other petroleum products will ignite and burn. If exposed to the skin, serious irritations may occur. Escaping gases can displace oxygen.
- Electricity will arc or short to ground producing heat that is up to four times greater than the heat of the sun. At a minimum, it will burn skin and damage internal organs. High voltage electricity can arc significant distances through the air. Be aware of all aboveground high voltage lines and keep any part of the equipment at least 10 feet away from overhead lines.
- Water under high pressure can cause serious injury. Wastewater contains bacteria that can be a significant health risk. Sewer gas will ignite and burn.

## RECOGNIZE UNSAFE CONDITIONS

- Pools of liquid, blowing dirt, hissing sounds, vapor clouds, gaseous odors, bubbles in standing water, dead vegetation, and frozen soil or ice next to pipelines are all signs of a natural gas or petroleum pipeline leak and should be treated as an emergency.
- Treat contact with any electric line as an emergency regardless of whether it appears undamaged, damaged or severed. This includes contact with aboveground high voltage lines.
- Utilities often jointly use trenches placing you at greater risk in trenches that also have electricity.
- Wet or discolored soil is an indication of a water/sewer leak and should be treated as a potential emergency condition.



# EMERGENCY CONDITIONS INVOLVING UNDERGROUND FACILITIES INCLUDE:

Leaks, ruptures, explosions, fires, severe settling or soil movement, weakened or damaged facilities and similar instances where immediate action is necessary to prevent loss of life, injury to persons, or damage to property and the environment. Every situation is different and must be evaluated on the individual circumstances. Below are general emergency response guidelines for various emergency/damage situations involving underground facilities.

## RESPOND IMMEDIATELY

### NATURAL GAS & PETROLEUM LIQUIDS

1. Turn off equipment, if it can be done safely.
2. Abandon all equipment and get a safe distance away.
3. Avoid open flames or anything that might start a fire. Do not start motor vehicles or electrical equipment. Remove all ignition sources (cigarettes, cell phones, or anything that could create a spark or static electricity).
4. Evacuate the area and keep people out.
5. Do not make contact with escaping liquids.
6. Do not operate any pipeline valves.
7. Call 911 or your local fire, police, or sheriff's office.
8. Do not try to put out a fire. If it's burning, let it burn; ask local firefighters to observe and protect adjacent property.
9. Contact the facility operator immediately to report the condition.

### ELECTRICITY

1. Only move equipment in contact with overhead or underground electric lines if you can move it away safely.
2. If excavator equipment remains in contact with electric equipment, it's safest to stay on equipment (unless on fire) until rescue workers arrive; keep others away. If you must abandon equipment, jump clear of it, landing with both feet on the ground at the same time, and then only shuffle or hop away.
3. If a buried electrical line is struck in wet soil/conditions, the ground may become energized for a large area around the strike. *(Hopping or shuffling away will help reduce your risk to step potential.)*

4. Contact the facility operator immediately to report the condition.
5. If appropriate, call 911 for local emergency response.

### WATER/SEWER

1. Evacuate the area immediately and keep people out. Leaking water can fill a trench quickly making escape extremely difficult.
2. Do not close valves in order to stop flooding. Closing the wrong valve may affect fire flows and/or possible containment of potable systems.
3. Be careful of damaged high-pressure water lines because even the slightest scratch or vibration can cause pipelines to break.
4. Move carefully around trenches with wet walls. Wet soil can easily cause suffocation.
5. Avoid contact with wastewater. Do not wade in or work around wastewater.
6. Sewer gas is flammable; avoid open flames or anything that might start a fire.
7. Contact the facility operator immediately to report the condition.

### FIBER/COMMUNICATION

1. If a fiber optic cable is cut, do not look into the end of it. Serious eye damage may occur.
2. Contact the facility operator and report the condition.

## NEVER BURY A DAMAGED FACILITY!

*Even a minor scrape, nick, cut, tear, break, or dent should be reported to the facility owner immediately. If not promptly repaired, it could result in a future leak, service outage, explosion, accident, injury, or death.*

The above information is intended for educational purposes only. Infrastructure Resources, LLC and Pipeline Association for Public Awareness assume no liability for any individual's use of or reliance upon the above information. While every effort is made to provide accurate and reliable information, Infrastructure Resources, LLC and Pipeline Association for Public Awareness do not guarantee or warrant that the information is complete, accurate or up-to-date.

# CONDICIONES DE EMERGENCIA

que afectan las instalaciones subterráneas incluyen: escapes, rupturas, explosiones, incendios, hundimiento severo o movimiento de tierra, debilitamiento y daño de gasoductos/oleoductos/acueductos, y casos similares donde es necesaria la acción inmediata para impedir pérdida de vidas, heridas a personas, o daños a propiedad y el medio ambiente. Cada situación es diferente y debe ser evaluada individualmente según las circunstancias. A continuación se dan directrices generales de emergencia para reaccionar ante varias emergencias/situaciones donde hay daños que afectan las instalaciones subterráneas.

## REACCIONE INMEDIATAMENTE

### GAS NATURAL Y LÍQUIDOS DERIVADOS DEL PETRÓLEO

1. Apague el equipo, si lo puede hacer con seguridad.
2. Abandone todo el equipo y alejese a una distancia segura.
3. Evite llamas abiertas o cualquier cosa que pueda prender fuego. No arranque vehículos de motor o equipo eléctrico. Retire todas las fuentes de ignición (cigarillos, teléfonos celulares, o cualquier cosa que pueda crear una chispa o electricidad estática).
4. Evacúe el área y no deje pasar a la gente.
5. No haga contacto con escapes de líquidos.
6. No maneje las válvulas de gasoductos/oleoductos.
7. Llame al número de emergencia 911 o llame a las oficinas locales del cuerpo de bomberos, policía, o sheriff.
8. No trate de apagar el fuego. Si está ardiendo déjelo quemar; pídale a los bomberos que observen y protejan la propiedad adyacente.
9. Inmediatamente póngase en contacto con a la compañía que opera los gasoductos/oleoductos para reportar las condiciones.

### ELECTRICIDAD

1. Sólo mueva equipo que esté en contacto con cables eléctricos aéreos o subterráneos si usted lo puede mover con seguridad.
2. Si el equipo excavador continúa en contacto con equipo eléctrico, es más seguro quedarse en el equipo (a no ser que esté en llamas) hasta que lleguen los trabajadores de rescate: no deje que otros se acerquen. Si tiene que abandonar el equipo, salte lejos del equipo, cayendo con ambos pies a la misma vez, y luego sólo alejese arrastrando los pies o saltando
3. Si hay impacto con un cable enterrado y la tierra está mojada, la tierra en el área alrededor del impacto puede estar energizada. (Reduzca el riesgo de electrocutarse alejándose saltando o arrastrando los pies.)
4. Inmediatamente póngase en contacto con la compañía que opera las instalaciones para reportar la emergencia

5. Si es apropiado llame al número de emergencia 911 para ayuda local.

### ACUEDUCTO/ALCANTARILLADO

1. Evacúe el área de inmediato y no deje que la gente se acerque. Un escape de agua puede llenar una zanja rápidamente haciendo su escape sumamente difícil.
2. No cierre las válvulas para impedir inundaciones. Cerrar la válvula equivocada puede impedir que el agua pase por los ductos de agua que usan los bomberos para apagar fuegos y/o posiblemente contaminar el sistema de agua potable.
3. Tenga cuidado con los ductos de agua de alta presión debido a que cualquier leve rasguño o vibración puede causar una ruptura.
4. Muévase con cuidado alrededor de zanjas que tienen las paredes mojadas. Tierra mojada puede derrumbarse fácilmente y causar asfixia.
5. Evite contacto con aguas residuales. No camine o trabaje alrededor de aguas residuales.
6. Los gases del alcantarillado son inflamables; evite llamas abiertas o cualquier cosa que pueda iniciar un incendio.
7. Inmediatamente póngase en contacto con la compañía que opera los acueductos y alcantarillados para reportar la emergencia.

### FIBRA ÓPTICA/COMUNICACIÓN

1. Si el cable de fibra óptica está cortado, no mire adentro de la punta del cable. Graves daños a los ojos pueden ocurrir.
2. Inmediatamente póngase en contacto con la compañía que opera la fibra óptica para reportar la situación.

## NUNCA ENTIERRE EQUIPO DAÑADO

*Nunca entierre equipo dañado como cables eléctricos, gasoductos, oleoductos, o ductos de cualquier tipo. Informe de inmediato a la compañía afectada cualquier leve rasguño, corte, rotura, o abolladura. Si la reparación no es hecha rápidamente en el futuro pueden resultar escapes, interrupción de servicios, explosiones, accidentes, heridas, o muerte.*

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# Know the Possible Hazards

Leak, Hazard, and Emergency Response Information	Natural Gas	Petroleum Gas	Petroleum Liquids	Anhydrous Ammonia	Carbon Dioxide	Ethanol	Hydrogen Gas	Sour Gas (H <sub>2</sub> S)	Sour Crude Oil (H <sub>2</sub> S)	Liquids & Natural Gas
<b>INDICATIONS OF A LEAK</b>										
See - liquid pooling on the ground			X			X			X	X
See - a white vapor cloud that may look like smoke		X		X	X					
See - fire coming out of or on top of the ground	X	X					X	X		X
See - dirt blowing from a hole in the ground	X	X		X	X		X	X		X
See - a sheen on the surface of water		X	X						X	X
See - an area of frozen ground in the summer	X	X		X	X		X	X		X
See - an unusual area of melted snow in the winter	X	X			X		X	X		X
See - an area of dead vegetation	X	X	X	X	X	X	X	X	X	X
See - bubbling in pools of water	X	X		X	X		X	X		X
Hear - a loud roaring sound like a jet engine	X	X		X	X		X	X		X
Hear - a hissing or whistling noise	X	X		X	X		X	X		X
Smell - an odor like rotten eggs or a burnt match	(1)	(1)						X	X	(1)
Smell - an odor like petroleum liquids or gasoline		X	X			X			X	X
Smell - an irritating and pungent odor				X				X	X	
<b>HAZARDS OF A RELEASE</b>										
Highly flammable and easily ignited by heat or sparks	X	X	X			X	X	X	X	X
Will displace oxygen and can cause asphyxiation	X	X		X	X		X	X		X
Vapors are heavier than air and will collect in low areas		X	X	X	X	X		X	X	X
Contact with skin may cause burns, injury or frostbite		X	X	X	X	X	X	X		X
Initial odor may be irritating and deaden the sense of smell								X	X	
Toxic and may be fatal if inhaled or absorbed through skin				X				X	X	
Vapors are extremely irritating and corrosive				X				X	X	
Fire may produce irritating and/or toxic gases	X	X	X	X		X	X	X	X	X
Runoff may cause pollution			X	X		X			X	X
Vapors may form an explosive mixture with air	X	X	X			X	X	X	X	X
Vapors may cause dizziness or asphyxiation without warning	(1)	(1)			X		X	X	X	(1)
Is lighter than air and can migrate into enclosed spaces	X						X			X
<b>EMERGENCY RESPONSE</b>										
Avoid any action that may create a spark	X	X	X			X	X	X	X	X
Do NOT start vehicles, switch lights or hang up phones	X	X	X			X	X	X	X	X
Evacuate the area on foot in an upwind and/or uphill direction	X	X	X	X	X	X	X	X	X	X
Alert others to evacuate the area and keep people away	X	X	X	X	X	X	X	X	X	X
From a safe location, call 911 to report the emergency	X	X	X	X	X	X	X	X	X	X
Call the pipeline operator and report the event	X	X	X	X	X	X	X	X	X	X
Wait for emergency responders to arrive	X	X	X	X	X	X	X	X	X	X
Do NOT attempt to operate any pipeline valves	X	X	X	X	X	X	X	X	X	X
Take shelter inside a building and close all windows				(2)	(2)			(2)	(2)	

(1) The majority of these products are naturally odorless and only certain pipeline systems may be odorized

(2) Sheltering in place is an alternative to evacuation when the products are toxic or the risk of fire is very low

BY STEVE WOO

SOME OBSERVATIONS ABOUT ROAD  
EXCAVATION SAFETY AND RESPONSIBILITIES:  
**EXCAVATION SAFETY IS A  
SHARED RESPONSIBILITY**



## Background

In the California Subsurface Incident Prevention Committee (SSIP), we had recently been tasked to discuss the role of road builders and their responsibility to obtain a dig ticket.

Road Builders often encounter shallow facilities when working to restore or replace the road surface. Road Contractors will grind the road surface to place a new cap of material over the road base, or in other work they remove the overlying tarmac and replace the entire road base itself in asphalt or concrete. Shallow facilities are often encountered such as irrigation lines, telecommunication facilities, street lighting conduits, landscaping control wiring and traffic sensors.

The arguments made by Road Builders and Road Grinders is that they are “only” going down a few inches, so they do not recognize the requirement to obtain a dig ticket. Since they are only going down a few inches they assume it should not conflict with operator facilities that should have been placed at state-mandated minimum depths. So, from their perspective, the fault and liability lie with the operators for non-compliance of minimum depth rules to protect their facilities.

Operators chimed in to state that they are not responsible for depth changes involving their facilities over time. Conditions like street improvements and erosion will affect the actual depth of their facilities. Further, they point out, excavators who do not have a valid dig ticket are assumed liable for any damages that may arise. So, damages and consequences are not the liability of the operator.

And what of safety?

## Responsibilities

In Committee we did reach consensus that all excavators are subject to the rules of the California 4216 Safe Excavation law and that there is no exception for road builders. All excavators must obtain a dig ticket before excavation activity, shallow or deep. All other rules of the 4216 also apply including discovery of conflicts and the use of “reasonable care”.

I realized that this situation describes the understanding that “excavation safety is a shared responsibility”. It also describes what a “culture of safety” is to all stakeholders.


How often have we all sat in customer/contractor safety meetings and been admonished by our customers that we (contractors) must have a “culture of safety?” And yet the definition of that “culture” remains undefined by our customers.

A “culture of safety” is when all stakeholders accept that it is their personal and professional responsibility to keep themselves, their fellow employees, their customers and the public safe from the hazards of their work. And that if any stakeholder fails in their roles and re-

assume safety but must verify to determine all conflicts with our proposed work.

Despite the arguments by some excavators against obtaining a dig ticket, failing to do so deprives the operator of the opportunity to protect their facilities and so in failing, “bad” things happen.

This is also illustrated by recent DIRT reports. DIRT data indicates that damages caused by excavators that do not have a dig ticket to operator facilities is about 45%. That means that 45% of the damages are caused by excavators who have failed in their responsibility to obtain a dig ticket to notify operators of their intent, and consequently “bad” things happen. And often this 45% of excavators are those



**“A “CULTURE OF SAFETY” IS WHEN ALL STAKEHOLDERS ACCEPT THAT IT IS THEIR PERSONAL AND PROFESSIONAL RESPONSIBILITY TO KEEP THEMSELVES, THEIR FELLOW EMPLOYEES, THEIR CUSTOMERS AND THE PUBLIC SAFE FROM THE HAZARDS OF THEIR WORK.”**

sponsibilities to themselves and others as defined under the safe excavation rules, “bad” things happen.

## Why Road Contractors Need to Obtain a Dig Ticket Before Excavation

The reality is that all excavators have the primary responsibility to begin the excavation safety process by first delineating their work area and then obtaining a dig ticket. If they fail to do that then how are operators to know where to protect their facilities by locating and marking? Shallow or deep those facilities cannot be located and marked by the operator to create that awareness without excavator notification. As professionals we can never

who may be aware of the Safe Excavation laws but do not think it applies to them, or assume they are working under the dig ticket of the primary contractor.

That is the reason why even Road Builders and Road Grinders along with all other would-be excavators, have the responsibility to get a dig ticket. It is about damage prevention and, primarily, the safety of the excavator, which brings us full circle to, “Excavation safety is a shared responsibility.” **ESB**






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# Common Ground Alliance Excavation Best Practices 16.0

The Best Practices Committee of the Common Ground Alliance (CGA) developed the following guide based on the Common Ground Study. The Best Practices document is considered the “go to” resource by all stakeholders, governments, and associated industries when addressing safety and damage prevention issues internally, as well as on the local, state, and national levels.














To view or download the complete Common Ground Alliance Best Practices Field Manual, visit [CommonGroundAlliance.com](http://CommonGroundAlliance.com)












<b>5-1: One Call Facility Locate Request</b>	<p> Practice Statement: The excavator requests the location of underground facilities at each site by notifying the facility owner/operator through the One Call Center. Unless otherwise specified in state/provincial law, the excavator calls the One Call Center at least two working days and no more than ten working days prior to beginning excavation.</p> <p>Practice Description: Currently 50 states and 5 Canadian provinces have One Call legislation and/or established One Call Centers recognizing that excavation performed without prior notification poses a risk to public safety, excavators, and the environment, and can disrupt vital services provided by facility operators. Increased participation in this One Call system provides for improved communication between excavators and facility operators necessary to reduce damage.</p>
<b>5-2: White Lining<sup>67</sup></b>	<p> Practice Statement: When the excavation site cannot be clearly and adequately identified on the locate ticket, the excavator designates the route and/or area to be excavated using white premarking, either onsite or electronically (when available through the One Call Center), prior to or during the request for the locate ticket.</p> <p>Practice Description: The route of the excavation is marked with white paint, flags, stakes, lines, polygons, or a combination of these to outline the dig site prior to notifying or during notification to the One Call Center and before the locator arrives on the job. Electronic white lining when available provides an alternative method where excavators may indicate their defined dig area visually by electronic data entry (lines or polygons) without the need for a physical site visit. The technology allows the excavator to identify for the locate technician a clear delineation of their proposed excavation area. Premarking allows the excavators to accurately communicate to the One Call Center, facility owners/operators or their locator where excavation is to occur. The 1997 safety study “Protecting Public Safety through Excavation Damage Prevention” by the NTSB reached the conclusion that premarking is a practice that helps prevent excavation damage. Maine was one of the first states to have mandatory premarking for non-emergency excavations. Connecticut also adopted a premarking requirement; however, the law provides for face-to-face meetings between operators and excavators on projects that are too large for or not conducive to premarking. Facility owners/operators can avoid unnecessary work created when locating facilities that are not associated with planned excavation. (See Appendix B for additional practice information)</p>
<b>5-3: Locate Reference Number</b>	<p> Practice Statement: The excavator receives and maintains a reference number from the One Call Center that verifies that the locate was requested.</p> <p> Practice Description: All calls from excavators processed by the One Call Center receive a unique message reference number, which is contained on all locate request messages. The excavator records this number; it is proof of notification to the members. The computer-generated request identifies the date, time, and sequence number of the locate request. Each locate request ticket (notification) is assigned a unique number with that One Call Center, the requestor, and the facility owner/operator. This number distinguishes this ticket from all other tickets so that it can be archived and retrieved upon request to provide the details of that request only.</p> <p></p>

<b>5-4: Pre-Excavation Meeting</b>	<p> Practice Statement: When practical, the excavator requests a meeting with the facility locator at the job site prior to marking the facility locations. Such pre-job meetings are important for major, or unusual, excavations.</p> <p> Practice Description: The meeting facilitates communications, coordinates the marking with actual excavation, and ensures identification of high-priority facilities. An on-site pre-excavation meeting between the excavator, facility owners/operators, and locators (where applicable) is recommended on major or large projects. This includes projects such as road, sewer, water, or other projects that cover a large area, that progress from one area to the next, or that are located near critical or high-priority facilities. Such facilities include, but are not limited to, high-pressure gas, high-voltage electric, fiber-optic communication, and major pipe or water lines.</p> <p> </p>
<b>5-5: Facility Relocations</b>	<p> Practice Statement: The excavator coordinates work that requires temporary or permanent interruption of a facility owner/operator’s service with the affected facility owner/operator in all cases.</p> <p> Practice Description: Any temporary or permanent interruption requires the active participation by the facility owner/operator and the excavator to ensure protection of facilities through a joint preplanning meeting or conference call. One Call Centers note on the ticket any special contractor requests for a joint meeting that require the facility owner/operator to initiate the process.</p> <p></p>
<b>5-6: Separate Locate Requests</b>	<p> Practice Statement: Every excavator on the job has a separate One Call reference number before excavating.</p> <p> Practice Description: There are often several excavators on a job site performing work. The construction schedule may dictate different types of work requiring excavation from different specialty contractors simultaneously. In these situations, it is imperative for each excavator to obtain a One Call reference number before excavation to ensure that the specific areas have been appropriately marked by any affected underground facility owner/operator.</p>
<b>5-7: One Call Access</b>	<p> Practice Statement: The excavator has access to a One Call Center 24 hours per day, 7 days a week.</p> <p> Practice Description: Utilities service the public needs 24 × 7 and thus should be protected during that same time. Certain conditions may exist that require excavators to work during off-hours (city/road congestion, off-peak utility service hours). Although most excavators are on the job site during regular work hours, they need to be able to call in future work locations after 5:00 p.m. This allows them more flexibility to schedule work and to avoid peak hours of locate requests at the One Call center.</p>






























5-8:	<b>Positive Response</b>
   	<p><b>Practice Statement:</b> The underground facility owner/operator either 1) identifies for the excavator the facility's tolerance zone at the work site by marking, flagging, or other acceptable methods; or 2) notifies the excavator that no conflict situation exists. This takes place after the One Call Center notifies the underground facility owner/operator of the planned excavation and within the time specified by state/provincial law.</p> <p><b>Practice Description:</b> If a facility owner/operator determines that the excavation or demolition is not near any of its existing underground facilities, it notifies the excavator that no conflict exists and that the excavation or demolition area is "clear." This notification by the facility owner/operator to the excavator may be provided in any reasonable manner including, but not limited to face-to-face communications; phone or phone message, facsimile or other electronic means; posting at the excavation or demolition area; or marking the excavation or demolition area. If an excavator has knowledge of the existence of an underground facility and has received an "all clear," a prudent excavator will attempt to communicate that a conflict does indeed exist, and the locator will make marking these facilities a priority before excavation begins. Better communication between the excavator and the facility owner/operator is required as an area of excavation becomes more crowded with new underground facilities. "Positive response" is a term used to describe the two types of action taken by a facility owner/operator after it receives notification of intent to excavate. The facility owner/operator must 1) mark its underground facilities with stakes, paint, or flags; or 2) notify the excavator that the facility owner/operator has no underground facilities in the area of excavation. This process allows the excavator to begin work in a timely manner. Existing states laws, including Texas, Idaho, Minnesota, Pennsylvania, and others (25 participating states or one call centers with 24/7 access). When the excavator makes the request to the One Call Center, the excavator is told which facility owners/operators will be notified. The excavator logs these facilities on a job sheet and identifies which facility owner/operators have responded by marking and which have cleared the area. When a facility owner/operator does not respond by marking or clearing, it may indicate that the facility owner/operator did not receive a locate notice or that the One Call Center's contact information for that facility owner/operator may be incorrect, incomplete, or corrupt (which could result in calamity). When the excavator has obtained all required information, the excavation can commence with confidence that the safety of the work crew and the public at large has been considered.</p>
5-9:	<b>Facility Owner/Operator Failure to Respond</b>
  	<p><b>Practice Statement:</b> If the facility owner/operator fails to respond to the excavator's timely request for a locate (e.g., within the time specified by state/provincial requirements) or if the facility owner/operator notifies the excavator that the underground facility cannot be marked within the time frame and a mutually agreeable date for marking cannot be arrived at, then the excavator re-calls the One Call Center. However, this does not preclude the excavator from continuing work on the project. The excavator may proceed with excavation at the end of two working days, unless otherwise specified in state/provincial law, provided the excavator exercises due care in all endeavors.</p> <p><b>Practice Description:</b> The facility owner/ operator and the excavator partner together to ensure that facilities are marked in an acceptable time frame to allow for underground facility protection.</p>
5-10:	<b>Locate Verification</b>
	<p><b>Practice Statement:</b> Prior to excavation, excavators verify that they are at the correct location, verify locate markings and, to the best of their ability, check for unmarked facilities.</p> <p><b>Practice Description:</b> Upon arrival at the excavation site and prior to beginning the excavation, an excavator does the following:</p> <ul style="list-style-type: none"> <li>• Verifies that the dig site matches the One Call request and is timely</li> <li>• Verifies that all facilities have been marked and reviews color codes if in doubt</li> <li>• Verifies all service feeds from buildings and homes</li> <li>• Checks for any visible signs of underground facilities, such as pedestals, risers, meters, and new trench lines</li> <li>• Checks for any facilities that are not members of the One Call Center and contact someone to get them located.</li> </ul> <p>Use of a pre-excavation checklist is recommended by insurers and practiced by responsible excavating contractors.</p>
5-11:	<b>Documentation of Marks</b>
	<p><b>Practice Statement:</b> An excavator uses dated pictures, videos, or sketches with distance from markings to fixed objects recorded, to document the actual placement of markings.</p> <p><b>Practice Description:</b> In most situations when underground facilities are not properly marked, excavators have no way of knowing where underground utilities are located. If locate markings are adequately documented through the use of photographs, video tape, or sketches before excavation work begins, it is easier to resolve disputes if an underground facility is damaged as a result of improper marking, failure to mark, or markings that have been moved, removed, or covered. It is important for excavators and locators to document the location of markings before excavation work begins. The primary purpose of this best practice is to avoid unnecessary litigation and expensive legal fees for all parties involved.</p>
5-12:	<b>Work Site Review with Company Personnel</b>
	<p><b>Practice Statement:</b> Prior to starting work, the excavator reviews the location of underground facilities with site personnel.</p> <p><b>Practice Description:</b> Sharing information and safety issues during an on-site meeting between the excavator and the excavating crews helps avoid confusion and needless damage to underground facilities.</p>
5-13:	<b>One Call Reference Number at Site<sup>59</sup></b>
	<p><b>Practice Statement:</b> Except in case of an emergency, the excavator at each job site has available a complete description of the dig site, a list of the facility owner members impacted at that dig site as identified by the One Call Center, and the One Call Center ticket number.</p> <p><b>Practice Description:</b> The availability of locate request details on site is useful because excavators can easily access information about the location and extent of work, the valid start time, and the list of operators notified. The documentation also provides an excavator with appropriate information for daily tailgate meetings for crews; provides quick references for excavation equipment operators; and facilitates communications between the excavator and the One Call Center with respect to that particular locate request, should it become necessary. When multiple crews are working on the same project at separate locations or when different employers have crews working at the same location, each crew has the information.</p>
5-14:	<b>Contact Names and Numbers</b>
	<p><b>Practice Statement:</b> The excavator's designated competent person at each job site has access to the names and phone numbers of all facility owner/operator contacts and the One Call Center.</p> <p><b>Practice Description:</b> Situations arise on the job site that require immediate notification of the facility owner/operator, One Call Center, or local emergency personnel. To avoid costly delays, the excavator ensures that the designated job site personnel have all appropriate names and phone numbers. If telephone communication is unavailable, radio communication to the "home office" is available so that timely notification can be made. The "home office" also has immediate access to all appropriate names and telephone numbers.</p>
5-15:	<b>Facility Avoidance</b>
	<p><b>Practice Statement:</b> The excavator uses reasonable care to avoid damaging underground facilities. The excavator plans the excavation so as to avoid damage or to minimize interference with the underground facilities in or near the work area.</p> <p><b>Practice Description:</b> Foremost on any construction project is safety. Excavators using caution around underground facilities significantly contribute to safe excavation of existing facilities.</p>

<b>5-16: Federal and State Regulations</b>	
 <p><b>Practice Statement:</b> The excavator complies with all applicable federal and state/provincial safety regulations, and, when required, provides training as it relates to the protection of underground facilities.</p> <p><b>Practice Description:</b> Although most existing state/provincial damage prevention legislation does not include reference to federal and state/provincial regulations, it is important to include reference to worker safety and training in the best practices. Excavators are required to comply with federal and state/provincial occupational safety and health requirements to protect employees from injury and illness. These regulations include reference to training each employee to recognize and avoid unsafe conditions in the work environment and to control or eliminate any hazards or exposures to illness or injury. Therefore, the excavator's crew, as part of its safety training, is informed of the best practices and regulations applicable to the protection of underground facilities.</p>	
<b>5-17: Marking Preservation</b>	
 <p><b>Practice Statement:</b> The excavator protects and preserves the staking, marking, or other designation of underground facilities until no longer required for proper and safe excavation. The excavator stops excavating and notifies the One Call Center for re-marks if any facility mark is removed or is no longer visible.</p> <p><b>Practice Description:</b> During long, complex projects, the marks for underground facilities may need to be in place far longer than the locating method is durable. Painting, staking, and other marking techniques last only as long as the weather and other variables allow. When a mark is no longer visible, but work continues around the facility, the excavator requests a re-mark to ensure the protection of the facility.</p>	
<b>5-18: Excavation Observer</b>	
 <p><b>Practice Statement:</b> The excavator has an observer to assist the equipment operator when operating excavation equipment around known underground facilities.</p> <p><b>Practice Description:</b> The excavator designates a worker (an observer) who watches the excavation activity and warns the equipment operator while excavating around a utility to prevent damaging that buried facility.</p>	
<b>5-19: Excavation Tolerance Zone</b>	
 <p><b>Practice Statement:</b> The excavator observes a tolerance zone that is comprised of the width of the facility plus 18 in. on either side of the outside edge of the underground facility on a horizontal plane. This practice is not intended to preempt any existing state/provincial requirements that currently specify a tolerance zone of more than 18 in.</p> <p><b>Practice Description:</b> (See Practice Statement 5-20)</p>	





<b>5-20: Excavation Within Tolerance Zone</b>	
 <p><b>Practice Statement:</b> When excavation is to take place within the specified tolerance zone, the excavator exercises such reasonable care as may be necessary for the protection of any underground facility in or near the excavation area. Methods to consider, based on certain climate or geographical conditions, include hand digging when practical (pot holing), soft digging, vacuum excavation methods, pneumatic hand tools, other mechanical methods with the approval of the facility owner/operator, or other technical methods that may be developed. Hand digging and non-invasive methods are not required for pavement removal.</p> <p><b>Practice Description:</b> Safe, prudent, non-invasive methods that require the excavator to manually determine the actual location of a facility are considered "safe excavation practices" in a majority of state/provincial laws (38 states). A majority of states outline safe excavation practices to include hand digging or pot holing (16 states). Some states specifically allow for the use of power excavating equipment for the removal of pavement. Each state/province must take differing geologic conditions and weather related factors into consideration when recommending types of excavation within the tolerance zone.</p>	
<b>5-21: Mismarked Facilities</b>	
   <p><b>Practice Statement:</b> The excavator notifies the facility owner/ operator directly or through the One Call Center if an underground facility is not found where one has been marked or if an unmarked underground facility is found. Following this notification, the excavator may continue work if the excavation can be performed without damaging the facility, unless specified otherwise in state/provincial law.</p> <p><b>Practice Description:</b> When an excavator finds an unmarked or inaccurately marked facility, excavation stops in the vicinity of the facility and notification takes place. If excavation continues, the excavator plans the excavation to avoid damage and interference with other facilities and protects facilities from damage.</p>	
<b>5-22: Exposed Facility Protection</b>	
 <p><b>Practice Statement:</b> Excavators support and protect exposed underground facilities from damage.</p> <p><b>Practice Description:</b> Protecting exposed underground facilities is as important as preventing damage to the facility when digging around the utility. Protecting exposed underground facilities helps ensure that the utility is not damaged and, at the same time, protects employees working in the vicinity of the exposed facility. Exposed facilities can shift, separate, or be damaged when they are no longer supported or protected by the soil around them. Excavators support or brace exposed facilities and protect them from moving or shifting, which could result in damage to the facility. This can be accomplished in different ways; for example, by shoring the facility from below or by providing a timber support with hangers across the top of an excavation to ensure that the facility does not move or bend. In addition, workers are instructed to not climb on, strike, or attempt to move exposed facilities that could damage protective coatings, bend conduit, separate pipe joints, damage cable insulation, damage fiber optics, or in some way affect the integrity of the facility. The Occupational Safety and Health Administration (OSHA) also has addressed this issue in Subpart P—Excavation Standard 29 CFR 1926.651(b)(4), which states "While the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees." For example, an unsupported sewer main could shift, causing the pipe joints to separate, which could result in the trench where employees are working to flood, endangering the safety of employees.</p>	



<b>5-23:</b>   	<b>Facility Damage Notification</b>  <b>Practice Statement:</b> An excavator discovering or causing damage to underground facilities notifies the facility owner/operator and the One Call Center. All breaks, leaks, nicks, dents, gouges, grooves, or other damages to facility lines, conduits, coatings, or cathodic protection are reported.  <b>Practice Description:</b> A majority of states require notification for damage or substantial weakening of an underground facility (27 states). The possibility of facility failure or endangerment of the surrounding population dramatically increases when a facility has been damaged. Although the facility may not immediately fail, the underground facility owner/operator is provided the opportunity to inspect the damage and make appropriate repairs.
<b>5-24:</b>  	<b>Locate Request Updates</b>  <b>Practice Statement:</b> The excavator calls the One Call Center to refresh the ticket when excavation continues past the life of the ticket (sometimes, but not always, defined by state/provincial law). This recognizes that it is a best practice to define ticket life. If not currently defined in state/provincial law, ticket life is ideally 10 working days but does not exceed 20 working days. Original locate request tickets are generated so that the minimum number of locate request updates are necessary for the duration of a project. After all the excavation covered by a locate request is completed, no additional locate request updates are generated. Communication between excavation project planners, field personnel, and clerical personnel is essential in accomplishing this task. <sup>36</sup>  <b>Practice Description:</b> Refreshing the ticket recognizes that markings are temporary and provides notification to facility owners/operators of ongoing excavation when a job is started but not completed as planned. Any excavation not begun during the life of the ticket is recalled to the One Call Center. Any excavation that covers a large area and will progress from one area to the next over a period of time is broken into segments when notifying the One Call Center in order to coordinate the marking with actual excavation. The possibility exists that new facilities have been installed in the area where the excavation is to be conducted after the original notification and marking. This practice also helps in situations where multiple excavators are working in the same area at essentially the same time. An example of when this can occur is when two facility owners, such as a cable television company and a telephone company, are planning to serve a new section of a subdivision. In their pre-planning process, they see a vacant space in the right-of-way to place their new facility. Each excavator (internal or external) calls the One Call Center for locates and each facility owner/operator comes and marks their respective facilities indicating that nothing exists. For one reason or another, one of the excavators gets delayed and does not start construction as planned, and when returning to the job site to place the new facility, finds new lines have been installed in the previously vacant space. Many facility owners/operators do not perform their own locates and utilize the services of a contracted facility locator. These contracted facility locators may not be aware of work planned in the near future. By excavators refreshing the locate ticket, the contract locator has another opportunity to identify newly placed facilities. This practice also gives the facility owner/operator another chance to identify the location of their facilities and to avoid possible damage and disruption of service if something was marked incorrectly or missed on a previous locate. Excellent planning, generation, and updating of tickets enhance safety and reduce the unnecessary use of locate resources. <sup>37</sup>
<b>5-25:</b>  	<b>Notification of Emergency Personnel</b>  <b>Practice Statement:</b> If the damage results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health, or property, the excavator responsible immediately notifies 911 and the facility owner/operator. <sup>37</sup> The excavator takes reasonable measures to protect everyone in immediate danger, the general public, property, and the environment until the facility owner/operator or emergency responders arrive and complete their assessment. <sup>41</sup>  <b>Practice Description:</b> This practice is already required by many of the states' One Call legislation. This practice minimizes the danger to life, health, or property by notifying the proper authorities to handle the emergency situation. In these situations, local authorities are able to evacuate as appropriate and command substantial resources unavailable to the excavator or underground facility owner/operator. The excavator takes reasonable measures based on their knowledge, training, resources, experience, and understanding of the situation to protect themselves, people, property, and the environment until help arrives. The excavator responsible remains on-site to convey any pertinent information to responders that may help them to safely mitigate the situation. <sup>4</sup>
<b>5-26:</b>   	<b>Emergency Excavation</b>  <b>Practice Statement:</b> In the case of an emergency excavation, maintenance or repairs may be made immediately, provided that the excavator notifies the One Call Center and facility owner/operator as soon as reasonably possible. This includes situations that involve danger to life, health, or property or that require immediate correction in order to continue the operation of or ensure the continuity of public utility service or public transportation.  <b>Practice Description:</b> This practice allows excavation to begin immediately to restore service or to stop a hazardous situation from getting worse in the case of a gas or pipeline leak, cut telephone cable, or other facility damage.
<b>5-27:</b> 	<b>Backfilling</b>  <b>Practice Statement:</b> The excavator protects all facilities from damage when backfilling an excavation. Trash, debris, coiled wire, or other material that could damage existing facilities or interfere with the accuracy of future locates are not buried in the excavation.  <b>Practice Description:</b> Extra caution must be taken to remove large rocks, sharp objects, and large chunks of hard-packed clay or dirt. No trash or pieces of abandoned lines are backfilled into the trench. This helps prevent inadvertent damage to the facility during the backfill process.
<b>5-28:</b>  	<b>As-built Documentation</b>  <b>Practice Statement:</b> Contractors installing underground facilities notify the facility owner/operator if the actual placement is different from expected placement.  <b>Practice Description:</b> For a facility owner/operator to maintain accurate records of the location of their facilities, it is critical that the contractor installing the new facility be required to notify the facility owner/operator of deviations to the planned installation. Some facility owners/operators do not require a full-time inspector and use a sampling process to ensure that a new facility is correctly installed in compliance to specifications. When this occurs, it becomes much more critical for the contractor to notify the facility owner/operator of changes. For example, it is common for the contractor to make adjustments in the location of the new facility when rocks or other underground obstructions are encountered or when the location of the new facility conflicts with another existing underground facility. This change in plan can represent changes in horizontal or vertical distances from the specified plans. The facility owner/operator establishes standards that require notification if a deviation is beyond specified tolerances, such as changes in depth of 6 in. or more and lateral measurement changes of greater than 1 ft. When these changes to the expected location are communicated to the facility owner/operator, it is the owner/operator's responsibility to take appropriate action to update their records so that an accurate locate can be conducted in the future.
<b>5-29:</b>      	<b>Trenchless Excavation<sup>13</sup></b>  <b>Practice Statement:</b> All stakeholders comply with all best practices and the following general guidelines prior to, during, and after any trenchless excavation (as applicable).  <b>Practice Description:</b> <ul style="list-style-type: none"> <li>• The excavator requests the location of underground facilities at the entrance pit, trenchless excavation path, and the exit pit by notifying the facility owner/operator through the One Call Center.</li> <li>• The trenchless equipment operator performs a site inspection, walking the trenchless excavation path prior to commencing work, and has a good understanding of the job.</li> <li>• The trenchless excavation operator confirms and maintains the path and minimum clearances established by the project owner and design engineer by tracking and recording the path of the trenchless excavation until complete. Means of tracking trenchless excavations include electronic locating/guidance devices, pipe lasers, water levels, visual inspection, etc.</li> <li>• When existing facilities are known to be present but cannot be potholed as a result of local conditions, the facility owner and the excavator meet to discuss how to safely proceed with the excavation.</li> <li>• The excavator stops the trenchless excavation operations if an abnormal condition, unknown substructure, or other hidden hazard is encountered. The excavator proceeds safely only after making positive identification. (Refer to Practice Statements 2–13 and 4–19 for additional information.)</li> </ul>

<b>5-30:</b>	<b>Emergency Coordination with Adjacent Facilities<sup>16</sup></b>
     	<p><b>Practice Statement:</b> Emergency response planning includes coordination with emergency responders and other aboveground and/or underground infrastructure facility owner/operators identified by the Incident Commander through the Incident Command System/Unified Command (ICS/UC) during an emergency.</p> <p><b>Practice Description:</b> During emergency situations, there are many stakeholders involved: excavators, locators, owner/operators, first responders, One Call Centers, and the general public. Any actions taken by one stakeholder could adversely affect other stakeholders. Accordingly, emergency planning and response are coordinated.</p>
<b>5-31:</b>	<b>No Charge for Providing Underground Facility Locations<sup>23</sup></b>
 	<p><b>Practice Statement:</b> Upon notification by One Call Centers, locations of underground facilities are provided by operators at no cost to excavators.</p> <p><b>Practice Description:</b> It is the basic underpinning of the call-before-you-dig process that persons involved in excavation activities receive facility locates at no charge when they contact their local One Call Center to give notice of intent to excavate. This service is critical to maintaining the communication between operators and excavators. Call-before-you-dig education and marketing campaigns, such as 811 and those promoted by One Call Centers and associated industries, advise persons involved in excavation activities, including the public, homeowners, and professional excavators, that the service is provided by facility operators at no charge to the person providing the notice of intent to excavate.</p>

3. 11/30/2001 Amendment approved by the CGA Board via TR-2001-02A  
4. 09/27/2002 Amendment approved by the CGA Board via TR-2001-02B  
13. 09/16/2005 Amendment approved by the CGA Board via TR-2002-03  
16. 09/08/2006 Amendment approved by the CGA Board via TR-2005-02  
23. 08/08/2008 Amendment approved by the CGA Board via TR-2007-06  
36. 07/16/2010 Amendment approved by the CGA Board via TR-2009-16  
37. 07/16/2010 Final wording approved by the CGA Board via TR-2009-16  
39. 09/10/2010 Amendment approved by the CGA Board via TR-2009-09  
59. 06/19/2014 Wording approved by CGA Board via TR-2011-11  
64. 12/13/2016 Approved by CGA Board via TR-2014-01  
67. 12/13/2017 Approved by CGA Board via TR-2016-01

<b>5-32:</b>	<b>Vacuum Excavation<sup>39</sup></b>
 	<p><b>Practice Statement:</b> Vacuum excavation, when used appropriately, is an efficient, safe, and effective alternative to hand digging within the designated underground facility tolerance zone. Use of equipment also follows state/provincial laws and/or local ordinances.</p> <p><b>Practice Description:</b> The safe exposure of underground facilities within the tolerance zone is essential to damage prevention. Site conditions may make the use of hand tools to expose underground facilities difficult or even impractical. Vacuum excavation is often an appropriate alternative. Locates must be obtained prior to the commencement of work (see Practice Statement 5-1). Many underground facility owners/operators have specific criteria for safe excavation/exposure practices around their facilities. Some underground facility owners/operators accept vacuum excavation as equivalent to hand excavation for exposing their facilities, and others have restrictions on its use. Vacuum excavation is an appropriate method of excavating safely around underground facilities provided that the equipment</p> <ul style="list-style-type: none"> <li>• has been specifically designed and built for this purpose;</li> <li>• is operated by a worker trained and experienced in its operation;</li> <li>• is operated in accordance with practices that provide appropriate levels of worker and public safety and prevent damage to buried facilities; and</li> <li>• is used in compliance with state/provincial laws and/or local ordinances.</li> </ul>
<b>5-33:</b>	<b>Facility Owner Provides a Monitor During Excavation<sup>64</sup></b>
 	<p><b>Practice Statement:</b> If a facility owner/operator considers it necessary to be on site during excavation activities to work with the excavator in protecting their existing facilities, the facility owner/operator makes arrangements with the excavator to be present during those excavation activities within the time specified by state/provincial law.</p> <p><b>Practice Description:</b> The facility owner/operator may determine it necessary to be on site during excavation activities taking place near their facilities to help protect them. A facility owner/operator has access to information and resources that may not be available to the excavator. This practice should be considered in conjunction with Practice Statement 2-4: Utility Coordination.</p>

## Community Liaison Service

Formerly known as Community Assistance & Technical Services (CATS)

PHMSA has renamed its CATS program to "Community Liaison Services" to more appropriately align with current roles and responsibilities and better interface with various stakeholders.

### Mission:

To advance PHMSA's pipeline safety mission by proactively engaging with pipeline stakeholders, providing technical expertise, and leveraging technology, data, and information to reduce pipeline risks and influence change through program and policy development.

### Vision:

To serve as "trusted" and "credible" stewards of public safety and environmental protection by raising awareness and influencing change to continuously improve pipeline safety.

If you need assistance with any of the following pipeline safety related matters, please contact a PHMSA Community Liaison today:

- Pipeline safety policy/programs (damage prevention, public awareness, emergency response, PIPA, etc.)
- Pipeline stakeholder engagement and outreach
- Pipeline technical services and support (public inquiries, whistleblowers, post incident/accident communications, siting and permit initiatives)
- Questions about pipeline safety in your community

**Community Liaisons are located within each PHMSA region. Contact information for the Community Liaisons for your state is noted below.**

### Community Liaison Services Program Manager

**Karen Lynch:** karen.lynch@dot.gov • Phone: (202) 366-6855

### Central Region:

Illinois; Indiana; Iowa; Kansas; Michigan; Minnesota; Missouri; Nebraska; North Dakota; South Dakota; Wisconsin.

**Angela Pickett:** angela.pickett@dot.gov • Phone: (816) 329-3823

**Sean Quinlan:** sean.quinlan@dot.gov • Phone: (816) 329-3800

### Southern Region:

Alabama; Florida; Georgia; Kentucky; Mississippi; North Carolina; Puerto Rico; South Carolina; Tennessee.

**James Kelly:** james.kelly@dot.gov • Phone: (404) 990-1848

**Arthur Buff:** arthur.buff@dot.gov • Phone: (404) 226-6153

### Eastern Region:

Connecticut; Delaware; Maine; Maryland; Massachusetts; New Hampshire; New Jersey; New York; Ohio; Pennsylvania; Rhode Island; Vermont; Virginia; Washington, D.C.; West Virginia.

**Karen Gentile:** karen.gentile@dot.gov • Phone: (609) 433-6650

**Ian Woods:** ian.woods@dot.gov • Phone: (609) 468-9478

### Southwest Region:

Arkansas; Louisiana; New Mexico; Oklahoma; Texas.

**Bill Lowry:** bill.lowry@dot.gov • Phone: (713) 272-2845

**James 'Jay' Prothro:** james.prothro@dot.gov • Phone: (713) 272-2832

### Western Region:

Alaska; Arizona; California; Colorado; Hawaii; Idaho; Montana; Nevada; Oregon; Utah; Washington; Wyoming.

**Tom Finch:** thomas.finch@dot.gov • Phone: (720) 963-3175

**Dave Mulligan:** david.mulligan@dot.gov • Phone: (720) 963-3193





# 49 CFR-PART 196

## PROTECTION OF UNDERGROUND PIPELINES FROM EXCAVATION ACTIVITY

### Subpart A—General

#### *§196.1 What is the purpose and scope of this part?*

This part prescribes the minimum requirements that excavators must follow to protect underground pipelines from excavation-related damage. It also establishes an enforcement process for violations of these requirements.

#### *§196.3 Definitions.*

**Damage or excavation damage** means any excavation activity that results in the need to repair or replace a pipeline due to a weakening, or the partial or complete destruction, of the pipeline, including, but not limited to, the pipe, appurtenances to the pipe, protective coatings, support, cathodic protection or the housing for the line device or facility.

**Excavation** refers to excavation activities as defined in §192.614, and covers all excavation activity involving both mechanized and

non-mechanized equipment, including hand tools.

**Excavator** means any person or legal entity, public or private, proposing to or engaging in excavation.

**One-call** means a notification system through which a person can notify pipeline operators of planned excavation to facilitate the locating and marking of any pipelines in the excavation area.



# 49 CFR PART 196

**Pipeline** means all parts of those physical facilities through which gas, carbon dioxide, or a hazardous liquid moves in transportation, including, but not limited to, pipe, valves, and other appurtenances attached or connected to pipe (including, but not limited to, tracer wire, radio frequency identification or other electronic marking system devices), pumping units, compressor units, metering stations, regulator stations, delivery stations, holders, fabricated assemblies, and breakout tanks.

## Subpart B—Damage Prevention Requirements

### *§196.101 What is the purpose and scope of this subpart?*

This subpart prescribes the minimum requirements that excavators must follow to protect pipelines subject to PHMSA or State pipeline safety regulations from excavation-related damage.

### *§196.103 What must an excavator do to protect underground pipelines from excavation-related damage?*

Prior to and during excavation activity, the excavator must:

- (a) Use an available one-call system before excavating to notify operators of underground pipeline facilities of the timing and location of the intended excavation;
- (b) If underground pipelines exist in the area, wait for the pipeline operator to arrive at the excavation site and establish and mark the location of its underground pipeline facilities before excavating;
- (c) Excavate with proper regard for the marked location of pipelines an operator has established by taking all practicable steps to prevent excavation damage to the pipeline;
- (d) Make additional use of one-call as necessary to obtain locating and marking before excavating to ensure that underground pipelines are not damaged by excavation.

### *§196.105 [Reserved]*

### *§196.107 What must an excavator do if a pipeline is damaged by excavation activity?*

If a pipeline is damaged in any way by excavation activity, the excavator must promptly report such damage to the pipeline operator, whether or not a leak occurs, at the earliest practicable moment following discovery of the damage.

### *§196.109 What must an excavator do if damage to a pipeline from excavation activity causes a leak where product is released from the pipeline?*

If damage to a pipeline from excavation activity causes the release of any PHMSA regulated natural and other gas or hazardous liquid as defined in part 192, 193, or 195 of this chapter from the pipeline, the excavator must promptly report the release to appropriate emergency response authorities by calling the 911 emergency telephone number.

### *§196.111 What if a pipeline operator fails to respond to a locate request or fails to accurately locate and mark its pipeline?*

PHMSA may enforce existing requirements applicable to pipeline operators, including those specified in 49 CFR 192.614 and 195.442 and 49 U.S.C. 60114 if a pipeline operator fails to properly respond to a locate request or fails to accurately locate and mark its pipeline. The limitation in 49 U.S.C. 60114(f) does not apply to enforcement taken against pipeline operators and excavators working for pipeline operators.

## Subpart C—Administrative Enforcement Process

### *§196.201 What is the purpose and scope of this subpart?*

This subpart describes the enforcement authority and sanctions exercised by the Associate Administrator for Pipeline Safety for achieving and maintaining pipeline safety under this part. It also prescribes the procedures governing the exercise of that authority and the imposition of those sanctions.

### *§196.203 What is the administrative process PHMSA will use to conduct enforcement proceedings for alleged violations of excavation damage prevention requirements?*

PHMSA will use the existing administrative adjudication process for alleged pipeline safety violations set forth in 49 CFR part 190, subpart

B. This process provides for notification that a probable violation has been committed, a 30-day period to respond including the opportunity to request an administrative hearing, the issuance of a final order, and the opportunity to petition for reconsideration.

### *§196.205 Can PHMSA assess administrative civil penalties for violations?*

Yes. When the Associate Administrator for Pipeline Safety has reason to believe that a person has violated any provision of the 49 U.S.C. 60101 et seq. or any regulation or order issued thereunder, including a violation of excavation damage prevention requirements under this part and 49 U.S.C. 60114(d) in a State with an excavation damage prevention law enforcement program PHMSA has deemed inadequate under 49 CFR part 198, subpart D, PHMSA may conduct a proceeding to determine the nature and extent of the violation and to assess a civil penalty.

### *§196.207 What are the maximum administrative civil penalties for violations?*

The maximum administrative civil penalties that may be imposed are specified in 49 U.S.C. 60122.

### *§196.209 May other civil enforcement actions be taken?*

Whenever the Associate Administrator has reason to believe that a person has engaged, is engaged, or is about to engage in any act or practice constituting a violation of any provision of 49 U.S.C. 60101 et seq., or any regulations issued thereunder, PHMSA, or the person to whom the authority has been delegated, may request the Attorney General to bring an action in the appropriate U.S. District Court for such relief as is necessary or appropriate, including mandatory or prohibitive injunctive relief, interim equitable relief, civil penalties, and punitive damages as provided under 49 U.S.C. 60120.

### *§196.211 May criminal penalties be imposed?*

Yes. Criminal penalties may be imposed as specified in 49 U.S.C. 60123. **ESG**



# Overhead Electrical: **BE AWARE**

Situational awareness  
enhances jobsite safety

BY CHRIS BAAGOE-REED



Worksites are constantly changing and when tasks change, so do the hazards to workers. Situational awareness is the ability for a person to identify the potential safety hazards at the work site, understand how the work and hazards will interact, and act to control the hazards. This is an ongoing process, which will be repeated as work environments and safety risks change.

Overhead power lines on a construction site are a common hazard, to which situational awareness can be readily applied.

**1**

## **STEP 1: Identifying and Understanding Safety Hazards**

Project managers and supervisors must complete a pre-work inspection of a job site. Specific elements that should be examined may include: structure clearances, pathways for equipment, locations of overhead power lines, locations of utility boxes, and the topography of the job site. These items should be considered when planning the work for the project or day. OSHA requires a minimum 10-foot clearance for overhead power

lines and greater clearance is required for power lines with voltages higher than 50 kV. Electricity can arc through the air and cause injury without physical contact to the power lines. Due to arcing risk, it is essential that all required clearances are complied with, or the power line is deenergized. The local utility may disconnect service to allow for safe work, and project managers must allow time for this work to happen.

**2**

## **STEP 2: Plan Work to Avoid Safety Hazards**

Once a site assessment has been made and safety hazards have been identified, the information must be shared with the entire project team. The team must plan their daily work in a way that eliminates or mitigates safety risks. Hazards, such as overhead power lines and utility boxes, can be identified with visual aids, like caution tape on the areas below overhead power lines. Pathways for the safe movement of equipment should be planned to avoid areas with overhead power lines.

**3**

## **STEP 3: Act on Safety Hazards**

While the work is happening, all persons on site must complete their work away from hazards or in a way that decreases exposure to hazards. If vertical equipment, such as a ladder or scaffolding, is moved into the work area, it should be carried horizontally to decrease the risk of contacting an overhead power line. When vertical equipment is erected, dedicated spotters must assist the process and relay clearance information. Remember, a 10-foot or greater clearance is required from all energized power lines.

Maintaining situational awareness is the responsibility of all persons on an active work site. The process is ongoing and should adapt to changes in the worksite. The risks of an injury or damage decrease when all workers are engaged and aware of their surroundings.

*Chris Baagoe-Reed is Public Safety Coordinator with Xcel Energy. He can be reached at [Chris.B.Baagoe-Reed@xcelenergy.com](mailto:Chris.B.Baagoe-Reed@xcelenergy.com)* **ESG**

# CHANGES TO THE LAWS IN YOUR STATE

BY JENNIFER REAMS, UNDERGROUND TECHNICAL ADVISOR,  
INFRASTRUCTURE COMPLIANCE CONCEPTS • JREAMS.ICC@GMAIL.COM

Presented for informational purposes only. Information and laws are subject to change. Please consult the One Call center website or other sources for current information. The Pipeline Association for Public Awareness attempted to verify all information for accuracy as of the date of this publication, but is not responsible for incorrect or missing information. The Pipeline Hazardous Materials Safety Administration also has compiled extensive documentation for each state, which can be found by visiting: <https://primis.phmsa.dot.gov/comm/damagepreventionsummary.htm>

## ALABAMA

**SB 315 signed 6/6/19-** Alabama underwent substantial changes with Senate Bill 315. First, new definitions have been put in place for the following: (a) Near Miss- "An event where damage did not occur, but a clear potential for damage was identified", (b) Positive Response (c) Premark "To delineate the general scope of the excavation on the surface of the ground using white paint, white stakes, or other similar white markings", (d) Willful Noncompliance "The intentional refusal or failure to perform, or comply with, a duty created or imposed by this chapter or by the rules promulgated pursuant to this chapter.", (e ) Working Day Hours "The time from 7:00 A.M. to 12 5:00 P.M. local time on working day." (Special note that the definition of working day was modified to mean a working day starts the beginning of the next working day from the receipt of notification).

**Second,** several modifications for notification practices are identified as follows: (a) The elimination of the option for design ticket request to be sent directly to an operator's inhouse operational program. All design ticket requests must go directly through the One Call Notification System. (b) Working day, as described above, which extends to the notification timeframe of two days but to more than 10 working days to not include day of notification. Special note that it is 30 days for blasting operations. (c ) The option of a written notification has been eliminated in its entirety, (d ) Pre-marking shall be done prior to placing the notification; exempt only if it interferes with traffic or pedestrian control, (e ) In excavation notification to the One Call Notification System, ticket life has been extended to 20 working days for excavation work and 30 working days for demolition work. Further, this renewal must be performed through the One Call Notification System following the new working day definitions. (f) Civil penalties have been modified to a progressive penalty structure and include additional penalties for gross negligence or willful noncompliance, (g) The Underground Damage Prevention Authority has been granted the task of periodic review of the progressive penalty structure to ensure effectiveness and are in compliance with Federal Law.

**Other important additions to SB 315** are as follows: Mandatory membership of operators to the One Call Notification System over a period of time in accordance with preset terms, (b) elimination of liability when notification requirements are met under certain conditions and if an operator was obligated to become a member of the One Call Notification System but failed to do so under the terms outlined (c ) An exemption to operator locating requirements if the operator states that it does not have accurate information and provides best available information to the excavator. Special note: In this case, the excavator is not liable for damage if excavation is performed with reasonable care (as defined in section 37-15-8) and uses detection equipment or other acceptable means to determine facility location, (d) Within 12 months of effective date of SB 315, operator shall provide a positive response of



no facilities present or that facilities have been marked, (e ) Annually, operators will submit a report to the One Call Notification System of any damages or near misses. (f) Penalty allocation to the Underground Damage Prevention fund for exclusive use of the Underground Damage Prevention Authority for predefined acceptable allocations, (g) Provision that shall not limit any person's right to pursue any additional civil remedy otherwise allowed by law

<http://www.al811.com/>

## CALIFORNIA

**Assembly Bill 1166 Signed 10/02/2019-** This bill modifies existing obligations to the following: "after January 1, 2021, require every operator to supply an electronic positive response through the regional notification center before the legal excavation start date and time. The bill would authorize the board, upon a showing of good cause by an operator, to extend the time by which the operator is required to comply with this requirement, through December 31, 2021. The bill would require the board to determine which facts or circumstances constitute good cause. The bill would require the board, on or before January 1, 2021, to adopt emergency regulations, as prescribed, to implement these provisions. The bill would require the regional notification centers to annually report to the board regarding technological development".

### Important note from previous legislation to take effect:

If an operator or local agency knows that it has a subsurface installation embedded or partially embedded in the pavement that is not visible from the surface, the operator or local agency shall contact the excavator before pavement removal to communicate and determine a plan of action to protect that subsurface installation and excavator.

The excavator shall notify the appropriate regional notification center of the failure of an operator to identify subsurface installations.

**July 1, 2020,** The California Underground Facilities Safe Excavation Board shall enforce the provisions with limited exemptions. The board shall not initiate an enforcement action pursuant to this subdivision for a violation that occurred prior to July 1, 2020

Authorizes an excavator to use certain equipment prior to determining the exact location of the subsurface installations and would require the California Underground Facilities Safe Excavation Board, on or before July 1, 2020, to adopt regulations to implement this provision.

[www.digalert.org](http://www.digalert.org)  
[www.usanorth811.org](http://www.usanorth811.org)





# CHANGES TO THE LAWS IN YOUR STATE!

## COLORADO

CO

Important notes from previous legislation:

Beginning January 1, 2019, only when the ticket is created, a secondary excavator may be added to the ticket for activities that involve excavation for utility location. Also, mandatory positive response is required.

More changes will be in effect as of January 1, 2021 in terms of one call requirements to the association and the mandate to provide information to the notification association of all locations of any underground facilities that the member owns or operates.

It is highly recommended to reach out to the Colorado 811 center to get a comprehensive list of all changes and effective date. Link below.

<http://colorado811.org/>

## IDAHO

ID

**SB 1011 Effective 7/1/2019-** Idaho introduced new definitions into their one call law as follows: (a) Hand digging “Hand digging” means any excavation involving nonmechanized tools or equipment that when used properly will not damage underground facilities. Hand digging includes, but is not limited to, hand shovel digging, manual posthole digging, vacuum excavation, and soft digging.”, (b) Locator- “means a person who identifies and marks the location of an underground facility owned or operated by an underground facility owner.”, (c ) Soft digging –“any excavation using tools or equipment that utilize air or water pressure as the direct means to break up soil or earth for removal by vacuum excavation.”.

**SB 1073 Effective 7/1/2019-** This bill provides for new definitions (a) end user, (b) public right of way, (c ) Service lateral, and (d) underground facility easement. SB 1073 further provides guidance in regard to excavation associated with service laterals. It states “an end user shall not be required to locate or mark any service lateral. An underground facility owner who provides any utility service or commodity via a service lateral shall locate and mark the service lateral in accordance with the provisions”

<http://www.digline.com/>

## KANSAS

KS

**HB 2178 Approved 4/11/2019-** Introduces new definition for Electric Public Utility and exempts it from fitting the definition of an operator in the following case: “An electric public utility shall not be considered an operator of any portion of an underground facility that is on another person’s side of the point where ownership of the facility changes from the electric public utility to another person as determined by the electric public utility’s rules and regulation, tariffs, service or membership agreement or other similar documents”. Provides a provision beginning July 1, 2019, that the notification center shall notify excavators that utilities are not required to identify the location of privately owned facilities. The new law also clarifies obligations for tier 1 facilities at ownership change point and modifies the provisions tier 3 facilities are subject to from KSA 66-1805 through 66-1810 to KSA 66-1801.

<http://kansasonecall.com/>

## LOUISIANA

LA

**SB82 Effective 8/1/2019-** This bill provides provisions for the commissioner to delay mark-by time prior to the commencement of any excavation when an extension cannot be agreed upon when excavation could impact a pipeline on or in water. Further, commissioner has authority to extend ticket life if excavation could impact a pipeline located on or in water.

<https://www.louisiana811.com/>

## MAINE

ME

**SB 1720 Passed 6/7/2019-** Bill requires excavator to contact 9-1-1 if excavator comes in contact with or damages an underground pipe or another underground facility results in the escape of any natural gas or other hazardous substance or material.

<http://www.digsafe.com/>

## MASSACHUSETTS

MA

**Emergency Regulations Effective 10/18/2019-** The emergency regulation made extensive revisions to damage prevention rules as follows: (a) Clarifies marking materials be visible, pre-marking practices, (b) Defines the term Quarry as a site primarily used as a source of mine products from the earth, (c ) Reduces emergency facility locate times from 5 hours to 3 hours, (d ) Documentation of newly installed facilities, (e) Provision for communications between excavator and facility operator that no facilities are present in the area of an excavation ticket, (f) Provision for 72 hour wait after notifying Dig Safe Center, (g) 30 day ticket life as long as marks are not destroyed, (f) Clarifications for excavations near underground facilities using non-mechanical means and the proper use of mechanical excavation for initial penetration of pavement, rock or other such material, (g) Provision for requesting remarking’s and that no excavation shall take place in that area for 24 hours, (h) Set a time of 30 days for excavator to report damage to the Department, (i) provides penalties for violations relating to other than gas facilities, (j) Allows for penalties for violations without damage, and (k) Provides a provision to allow the Department to refer damage prevention matters to the Office of Public Safety and Inspections.

<http://www.digsafe.com/>

## MISSOURI

MO

**New Provision Effective 10/31/2019-** Provision changes maximum linear distance allowed on one locate request from 2640’ to 1500’ when excavating within city limits.

# CHANGES TO THE LAWS IN YOUR STATE!

## NEBRASKA

### LB 462 Approved 5/30/2019-

Nebraska introduced several changes to its damage prevention law. First, several definitions have been included as follows: (a) Call center “which shall have as its principal purpose the statewide receipt and dissemination to participating operators of information on a fair and uniform basis concerning intended excavations by excavators in areas where operators have underground facilities.”, (b) Locator “means a person who identifies and marks underground facilities for an operator, including a contractor who performs such location services for an operator”, (c) Ticket “means the compilation of data received by the center in the notice of excavation and the facility locations provided to the center and which is assigned a unique identifying number.” Further, the new law: (a) Grants the Call Center Board of Directors with the ability to propose new rules and regulations, (b) Requires locators acting as a contractor for an operator to perform location services to be trained in approved locator standards and grants the board of directors that authority or review the locator training materials and make best practice recommendations, (d) On or after 1/1/2021 any plastic or nonmetallic underground facilities shall be installed in such a manner as to be locatable, (e) Grants The Board of Directors with the authority to assess the effectiveness of enforcement programs, enforcement actions, damage prevention and public education programs. The findings shall be reported to the Governor and the Legislature no later than 12/1/2021 and by December 1 every off-numbered year thereafter, (f) Operators shall report that there are no services in the excavation ticket area prior to two full business days after the transmittal of the ticket or prior to the date of excavation (whichever occurs sooner). This communication shall be through the center., (e) The Attorney General shall make an annual report citing all complaints filed and number of complaints prosecutes prior to March 15th., (g) Grants authority to the State Fire Marshal to define occurrences relating to damage of an underground facility that creates an emergency condition that requires immediate notification of the excavator.

### Title 155 Chapter 1 & Chapters 2 Changes Effective 8/13/2019-

Several notable changes within these chapters are as follows: (a) When making an excavation notification, excavation may not take place for two full working days not including the day of initial call, (b) Ticket life of 17 days as long as marks are clear and not destroyed, (c) Mandatory positive response, (d) Marking requirements to include APWA color code, offset marking practices, and when known size, material and owner of facility, (e) Defines hand digging as “any excavation involving non-mechanized tools or equipment. It shall include but not be limited to, digging with shovels, picks, and manual post-hole diggers, vacuum excavation or soft digging”, (f) Mandates hand digging within 18” plus half the width of the marked facility.

<https://www.ne1call.com/>

## NEW JERSEY

**SB 679 Passes 1/31/2019-** Increased civil penalties for violations to \$200,000. For each violation for each day and the maximum penalty may not exceed \$2,000,000.

NJ

## NEW MEXICO

### New Mexico Public Utilities Commission Rule

Changes Effective for 2019 were extensive and include (a) extend the days of excavation for one call ticket from 10 to 15 days, (b) New excavator pre-marking requirements for “Outside incorporated areas, excavators shall provide clear and accurate driving and marking instructions; and either GPS coordinates or pre-marks as described above which define the parameters of the proposed excavation. The pre-marked excavation shall encompass location(s) where excavation equipment that may penetrate the surface will be setup such as directional boring equipment. If the location markings have been removed or are no longer visible and there are no marking offsets, the person engaging in the excavation activity shall suspend excavation activities and reinitiate a locate request set forth in this section. Such relocate request shall be limited to the area yet to be excavated only”, (c) Modifications to information needed on the locate ticket to include contact information of the person directly involved with or actually conducting the excavation at actual site and to provide GPS coordinates if available, (d) If excavation will extend beyond 15 working days; excavator shall request a wide area conference at least 2 working days prior to the intended conference,

(e) Ticket life for reaffirmation of wide area ticket is extended from 10 working days to 15 working days, (f) a new provision that sets pre-marking done by excavator to be “actual excavation area” and these will supersede information on the one call notification ticket. (g) Ticket life is extended from 10 working days to 15 working days, (h) In the provision for providing information on depth of facility in association with permanent markers, the provision has changed to maintaining a minimum of 18” inch coverage of facility, (g) Provision adding that excavator may begin excavation after two working days if facilities have been marked or cleared through the positive response system. Further, if facilities have not been cleared or located, the excavator shall provide notice to the one call notification system via a warning locate request. Facilities shall respond within two hours (i) A new provision when a facility can not be located as follows: “If the exact subsurface location of the underground facility or utility cannot be determined by nonmechanical means or mechanical vacuum excavation methods as required, the excavator shall contact the UFO directly and the UFO shall work with the excavator, to locate and expose the actual subsurface location of the underground facility or utility. If the UFO must resort to performing excavation to locate the facility, the UFO shall perform such excavation within five working days of notice from the excavator. If requested, the local one call notification center shall provide the excavator with the contact telephone number of the UFO.”, (j) Provides an ideal timeframe for when an emergency excavation can start of 24 hours, (k) Adds that a person shall be deemed to have willfully failed to comply if they fail to determine if all underground facilities have been marked or cleared.

<https://www.nm811.org/>

## NEW YORK

### NY S06756- Passed 11/05/2018.

#### Effective May 4, 2019.

Mandatory training for excavators performing work with government contracts. This training shall be conducted by the one-call notification center or any other provider authorized by the Public Service Commission. Further, any operator whom contracts or performs excavation of underground facilities shall

NM

NY



# CHANGES TO THE LAWS IN **YOUR STATE!**

require the excavator to complete this training in manner described above. Another addition requires excavators to contact the fire department in the event of an electrical short, escape of gas or hazardous fluids endangering life.

**AB 7287 Passed November 20, 2019-** New law states “In the event of an electrical short or the escape of gas or hazardous fluids endangering life, the excavator shall immediately notify the operator of the electric, gas or hazardous liquid underground facility and 9-1-1.

<https://www.digsafelynewyork.com/>

## **NORTH CAROLINA**

**HB 872 Passed 8/1/2019-** One of the biggest changes to the law through this legislation is that alleged violations will now be reported to The Underground Damage Prevention Review Board instead of the One Call Notification Center. Further, The Underground Damage Prevention Review Board has been granted authority to: Approve Training Courses and assess a fee to all operators based on the volume of notifications to provide funds for operations and activities. Another added provision is the exemption of government entities performing maintenance activities with labor on their permanent payroll. Other notable provisions are (a) defined ticket limit of ¼ of a mile, (b) Marks are to be indicated every 50’ instead of 25’, (c) AN operators identity shall be indicated at the beginning of the proposed excavation, at intervals of a minimum 200’ and at the end point of the proposed excavation.

<https://www.nc811.org/>

## **OKLAHOMA**

**HB 2097 Passed 4/25/2019-** The new law now excludes the day of call when making a notification request. Other notable inclusions are: Operator provision to locate and mark facilities has been modified from within 48 hours to “prior to the date and time work is scheduled to begin” and former exemptions in the definitions of excavations have been eliminated in cases of public right of ways or private utility easements are involved in the proposed excavation area.

<http://www.okie811.org/>

## **OREGON**

**Administrative Rule Change Approved 11/24/2018; Effective 01/01/2019-** The changes to this rule are extensive and include (a) Clarifying definition of business day to mean any 24-hour day other than a Saturday, Sunday, or federal or state legal holiday as provided in ORS 757.542. A business day begins at 12:00 a.m. and ends at 11:59 p.m., (b) Adding a definition for “ticket life” to establish that a locate ticket is valid for 45 days, (c) Definition of “Tolerance zone” to mean the area within 24 inches surrounding the outside dimensions of all sides of an underground facility, (d) Change excavator notice to at least two full business days, but not more than 10 full business days before beginning an excavation, the excavator must notify the Oregon Utility Notification Center of the date and location of the proposed excavation, and the type

of work to be performed, (e) Provides limited exemptions for less than 2 business day notification obligation of excavator, (f) Refine “reasonable accuracy” definition to mark within 24 inches of the outside lateral dimensions of both sides of all its locatable underground facilities within the area of proposed excavation. All marks must indicate the name, initials or logo of the operator of the underground facilities, and the width of the facility if it is greater than 2 inches and provide marks to the excavator of the unlocatable underground facilities in the area of proposed excavation, using the best information available including as-constructed drawings or other facility records that are maintained by the facility operator, (g) Large project design ticket requirements, (h) Mandatory safe excavation practices and excavator obligations when damaging an underground facility, and (i) Specific excavation requirements near critical facilities

<https://digsafelyoregon.com/>

<https://digsafelyoregon.com/wp-content/uploads/2018/11/OUNC-OAR-Revision-2019.pdf>

<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=4223>

## **WYOMING**

**HB 0152 Passed 2/26/2019-** The new law has added definitions for Government entity, Public right of way, and soft digging. Soft digging is defined as “any excavation using tools or equipment that utilize air or water pressure as the direct means to break up soil or earth for removal by vacuum excavation”. Other notable changes are as follows: (a) Firm 14 day ticket life with no exemptions for marking still visible, (b) Reasonable care when excavating near facilities shall include soft digging, (c) Excavator to contact 911 if contact with an underground facility results in release of gas or hazardous material, (d) Excavator pre-markings prior to the arrival of operator or operator agent with the following exemptions: “There is only one operator within the proposed excavation area and that operator can determine the location, excavator/operator meeting at excavation site prior to the start of excavation, emergency excavation, or a different method of locating and defining the area has been agreed to by excavator and all operators within the proposed excavation. (e) When preparing design drawings, notification center shall provide names and contact information of operators within the proposed excavation area, (f) The notification center shall provide a monthly report to the Attorney General on complaints of noncompliance, (g) Exempts the government activities of snowplowing, adding granular material to unpaved roads or shoulders, cleaning and sealing of roads and road patching from provisions of the Act. (h) Increases penalties to \$5000.00 for the following: Each year to operators for not becoming a member of the One Call, Failure to mark facilities, failure to contact the notification center prior to excavation, Calling in a false emergency notification.

<http://www.onecallofwyoming.com/>

# CHANGES TO THE LAWS IN **YOUR STATE!**

## 2019/2020 BILLS INTRODUCED

**Alaska** AK HB8

- Introduced 2/20/2019

**Florida** H1095, S1464

- Introduced 1/6/2020

**Illinois** SB 1517, HB3507

- Introduced 2/15/2019

**Maine** LD 1892

- Introduced 12/24/2019

**Missouri** HB 1970

- Introduced 1/9/2020

**New York** AB 3260

- Introduced 1/29/2019

**South Carolina** SB 88

- Introduced 12/11/2019

**Washington** HB 1006

- Introduced 1/14/2019

**Oklahoma** SB 1225

- Introduced 2/3/2020

## ENFORCEMENT AGENCIES

Enforcement of the damage prevention laws in your state can be a bit confusing to navigate. Questions such as: who is enforced, who enforces it, and what is enforceable are frequent throughout the US. To help you with your navigation below we have categorized states in accordance with

enforcement venues. Some states have more than one avenue of enforcement and may appear more than once in the list below. The Pipeline Hazardous Materials Safety Administration has compiled extensive documentation for each state, which can be found at the following link:

<https://primis.phmsa.dot.gov/comm/DamagePreventionSummary.htm?nocache=6529>

- **Public Utilities Commission:** Alaska, Arizona, California, Connecticut, Delaware, Georgia, Hawaii, Illinois- Illinois Commerce Commission, Indiana- Indiana Utility Regulatory Commission, Kansas, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Vermont, Virginia, West Virginia, Wisconsin
- **Attorney General:** Alabama, Arkansas, District of Columbia, Iowa, Nevada, South Carolina, Texas, Utah, Nebraska
- **Relevant County Court:** Alabama, Alaska, Arkansas, New Mexico
- **Division of Safety:** Idaho, Washington
- **Standalone Damage Prevention Boards/ Committees:** Colorado, Maryland, Mississippi, Puerto Rico, North Carolina
- **Railroad Commission:** Texas
- **Department of Labor:** Montana
- **Department of Natural Resources:** Louisiana
- **State Fire Marshal:** California
- **State One Call:** North Dakota, South Dakota, Wyoming
- **Law Enforcement:** Florida
- **Federal Office of Pipeline Safety:** Maine (may defer), Alaska




## One Call and State Law Directory

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One Call and State Law Directory			TICKETS			STATE LAWS & PROVISIONS							NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED				Tolerance Zone (either side of the utility plus the width of the utility)						
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ALABAMA / Alabama 811 / 800-292-8525																											
Website: al811.com Hours: 24 hours, 7 days Advance Notice: 2 full working days (not including day of notification) Marks Valid: 10 working days Law Link: al811.com/law			N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	12"*	Y	Y	Y	N	N	18"		
			*Agricultural purposes only																								
ALASKA / Alaska Dig Line, Inc. / 800-478-3121 or 907-278-3121																											
Website: 811ak.com Hours: 8:00 AM - 5:00 PM, M-F/Emergency 24/7 Advance Notice: 2-10 business days based on location Marks Valid: 15-20 business days based on location Law Link: 811ak.com/faq			N	Y	Y	Y	Y	Y	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	24"		
			*24-30" based on proposed depth of dig																								
ARIZONA / Arizona 811 / 800-782-5348 or 602-263-1100																											
Website: arizona811.com Hours: 6:00 AM - 5:00 PM, M-F Advance Notice: 2 full working days(excludes weekends and holidays) Marks Valid: 15 working days Law Link: arizona811.com/resources/			N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	N	Y	N	Y	Y	Y	N	N	24"		
ARKANSAS / Arkansas 811 / 800-482-8998																											
Website: arkansas811.com Hours: 24 hours, 7 days Advance Notice: 2 to 10 working days Marks Valid: 20 working days Law Link: arkonecall.com/statelaw/statelaw.aspx			N	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N	N	N	N	Y	Y	Y	N	Y	18"		
CALIFORNIA																											
USA North 811 / 800-642-2444 Website: usanorth811.org Hours: 24 x 7 Advance Notice: 2 working days, not including the day of notification Marks Valid: 28 days Law Link: usanorth811.org (Quick Links / Law & Excavation Manual)			N	Y	Y	N	Y	Y	Y*	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Y	24"	
Underground Service Alert of Southern California / 800-422-4133 Website: digalert.org Hours: 6:00 AM - 7:00 PM, M-F Advance Notice: 2 working days to 14 calendar days not including date of notice Marks Valid: 28 days Law Link: usanorth811.org (Quick Links/Law & Excavation Manual)			N	Y	Y	N	Y	Y	Y*	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	Y	24"		
			*DOT and non-pressurized sewer lines, storm drains and drain lines exempt																								
COLORADO / Colorado 811 / 800-922-1987																											
Website: co811.org • Hours: 24 hours Advance Notice: 2 days, not to include the day of notice Marks Valid: 30 days Law Link: colorado811.org/one-call-legislation/			N	Y	Y	Y	Y	Y	Y*	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	N	Y	18"		
			* DOT exempt																								
CONNECTICUT / Call Before You Dig / 800-922-4455																											
Website: www.cbyd.com Hours: 7:00 AM - 5:00 PM, M-F; Emergencies 24 Hours Advance Notice: 2 full working days up to 30 calendar days (excludes weekends and holidays) Marks Valid: 30 days Law Link: www.cbyd.com/resources/ct-cbyd-state-law-regulations#			N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	18"			
DELAWARE / Miss Utility of Delmarva / 800-282-8555																											
Website: missutilitydelmarva.com Hours: 24 hours, 7 days Advance Notice: 2 full business days Marks Valid: 10 working days in DE Law Link: delcode.delaware.gov/title26/c008/index.shtml			N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	N	N	N	N	Y	Y	N	N	24"		
FLORIDA / Sunshine 811 / 800-432-4770																											
Website: sunshine811.com Hours: 7:00 AM - 5:00 PM, M-F Advance Notice: 2 full business days (10 if dig site is underwater) Marks Valid: 30 days Law Link: sunshine811.com/the-law			N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	24"		

## One Call and State Law Directory

HELP US STAY UP TO DATE.

Directory information is also available online at [dp-pro.com](http://dp-pro.com).  
Report any updates to this directory by calling  
866-279-7755.



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TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
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		
N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N*	N	N	N**	N	Y	Y	Y	Y	Y	18"	
* Routine road maintenance ** Farming activities																							
Tickets Fax: 877-695-2466																							
Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	N	N	N	Y	Y	Y	N	N	30"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	Y	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	N	15"	N	Y	15"	Y	Y	Y	Y	N	24"	
N	Y	N	N	Y	Y	Y	N	Y*	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	18"	
Y	Y	N	N	Y	Y	N	Y	Y*	Y	Y	Y	N	N	Y	Y	N	Y	N	Y	N	N	18"	
*When possible																							
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	24"	
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	Y*	N	Y	Y	Y	N	Y	18"	
*Normal farm operations less than fifteen inches																							



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

Expand public awareness by visiting call811.com. You will find a variety of downloadable elements available for use free in your company/organization's existing campaigns.



TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
FAX	Online	Mobile	Statewide Coverage	Civil Penalties	Emergency Clause	Mandatory Membership	Excavator Permits Issued	Mandatory Remarks	Positive Response	Hand Dig Clause	Damage Reporting	DOT	Homeowner	Railroad	Agriculture	Depth	Damage	Design	Emergency	Overhead	Large Projects		
N	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	Y*	Y	Y	N	N	Y	Y	N	N	24"	
*Homeowner retains responsibility for any damages due to digging																							
N	Y	N	Y	Y	Y	N	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	N	N	N	N	N	Y	N	Y	N	N	N	Y	Y	Y	N	N	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	Y*	N	N	N	N	Y	Y	N	N	18"	
*Hand-dig only. Mechanized equipment must call																							
N	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	N	N	N	N	Y	Y	N	N	18"	
14-7233																							
N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	Y	18"	
or 651-454-0002																							
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	N	N	24"	
Tickets Fax: 601-362-7533																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	24"	12"	Y	Y	Y	N	Y	18"	
*Less than 16"																							
3 / Tickets Fax: 573-635-8402																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y*	N	Y	Y	Y	N	N	24"	

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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		
Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	N	18"	
Fax: 800-896-0664																							
Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	N	18"	
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	Y	N	Y	N	N	24"	
4-7233																							
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
/ Tickets Fax: 800-705-4559																							
Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	N	N	24"	
1 / 800-321-2537 / Tickets Fax: 800-727-8809																							
Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y	18"	
N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	N	24"	
N	Y	N	N	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	N	24"	
r, Inc. / 800-632-4949																							
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N	N	24"	




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


You can also reach your local One Call Center by dialing 811 anywhere in the United States. This is a FREE call and a FREE service.



TICKETS			STATE LAWS & PROVISIONS										NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)
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		
0555																							
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	N	N	24"	
N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N	Y	N	Y	Y	Y	N	Y	18"	
N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	N	Y	24"	
2-2344 / Tickets Fax: 503-293-0826																							
Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	12"	N	Y	N	N	Y	Y	N	N	24"	
c. / 800-242-1776																							
N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	Y	18"	
233																							
N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
* Mandatory when excavation site can't be clearly or adequately identified **Damages must be reported to the facility operator, if known, as well as the One Call Center. ***Exemptions for agricultural tilling and plowing less than 12"; homeowners have a 10" non-mechanized depth exception provided the ROW/ Easement not encroached. SCDOT exception for specific work activities only.																							
7877																							
N	Y	Y	Y	Y	Y	Y	N	Y*	Y	Y	Y**	Y***	Y***	N	Y***	N	Y	Y	Y	N	N	24"	
* Damage reporting required. All damage must be reported to the facility operator, or if the operator is unknown, to South Dakota 811 Center. ** For agricultural tilling and road and ditch maintenance to a depth of 18" only; homeowners have a 12" depth exception for tilling of soil and gardening																							
81-7474																							
N	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y*	N	N	N	N	N**	Y	Y	Y	N	Y	18"	
ts Fax: 615-367-4469																							
Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	Y	N	N	24"	

One Call and State Law Directory HELP US STAY UP TO DATE. Directory information is also available online at dp-pro.com. Report any updates to this directory by calling 866-279-7755.	TICKETS			STATE LAWS & PROVISIONS									NOTIFICATION EXEMPTIONS					NOTIFICATIONS ACCEPTED					Tolerance Zone (either side of the utility plus the width of the utility)	
	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		
 You can reach your local One Call center in the U.S. by dialing 811. Know what's below. Call before you dig.																								
TEXAS 811 / 800-344-8377																								
Website: <a href="http://texas811.org">texas811.org</a> Hours: 24 hours Advance Notice: 48 hours (excluding weekends and holidays) Marks Valid: 14 working days Law Links: <a href="http://statutes.capitol.texas.gov/Docs/UT/htm/UT.251.htm">statutes.capitol.texas.gov/Docs/UT/htm/UT.251.htm</a>	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	Y	16"	Y	Y	Y	N	N	18"	
UTAH / Blue Stakes of Utah 811 / 800-662-4111																								
Website: <a href="http://bluestakes.org">bluestakes.org</a> Hours: 7:00 AM - 5:00 PM, M-F Advance Notice: 2 business days, 48 hours notice Marks Valid: 14 calendar day Law Link: <a href="http://le.utah.gov/xcode/Title54/Chapter8A/54-8a.html">le.utah.gov/xcode/Title54/Chapter8A/54-8a.html</a>	N	Y	Y	Y	Y	N	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	24"	
*Agriculture exemption less than 16"																								
VERMONT / Dig Safe System, Inc. / 888-344-7233																								
Website: <a href="http://digsafe.com">digsafe.com</a> Hours: 24 hours, 7 days Advance Notice: 48 hours(excluding weekends and holidays) Marks Valid: 30 days Law Link: <a href="http://digsafe.com/laws_rules.php">digsafe.com/laws_rules.php</a>	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"	
VIRGINIA / Virginia 811 / 800-552-7001																								
Website: <a href="http://va811.com">va811.com</a> Hours: 24 hours, 7 days Advance Notice: 2 working days(excluding day of call) Marks Valid: 15 working days Law Link: <a href="http://va811.com/lawspolicies/">va811.com/lawspolicies/</a>	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	24"	
WASHINGTON / 800-424-5555 / TICKETS FAX: 503-293-0826																								
Utilities Underground Location Center (UULC/WA811) Website: <a href="http://washington811.com">washington811.com</a> Northwest Utility Notification Center (NUNC) Website: <a href="http://callbeforeyoudig.org">callbeforeyoudig.org</a> Inland Empire Utility Coordinating Council (IEUCC) Website: <a href="http://ieucc811.org">ieucc811.org</a> Hours: 24 hours, 7 days Advance Notice: 48 hours Advance Notice: 48 Hours Marks Valid: 45 days Law Link: <a href="http://washington811.com/wa-dig-law-rcw-19-122/">washington811.com/wa-dig-law-rcw-19-122/</a>	N	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	25"	
WASHINGTON D.C. / District One Call / 800-257-7777																								
Website: <a href="http://missutility.net">missutility.net</a> Hours: 24 hours, 7 days Advance Notice: 2 business day Marks Valid: 15 business days Law Link: <a href="http://apps.leg.wa.gov/rcw/default.aspx?cite=19.122&amp;full=true">apps.leg.wa.gov/rcw/default.aspx?cite=19.122&amp;full=true</a>	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	18"	
WEST VIRGINIA / West Virginia 811 / 800-245-4848																								
Website: <a href="http://wv811.com">wv811.com</a> Hours: 24 hours Advance Notice: 2 days but not more than 10 Marks Valid: 10 days Law Link: <a href="http://wv811.com/one-call-law">wv811.com/one-call-law</a>	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	N	24"	
WISCONSIN / Diggers Hotline / 800-242-8511																								
Website: <a href="http://diggershotline.com">diggershotline.com</a> Hours: 24 hours, 7 days Advance Notice: 3 working days Marks Valid: For duration of work if marks remain visible and work is continuous Law Link: <a href="http://docs.legis.wisconsin.gov/statutes/statutes/182/0175">docs.legis.wisconsin.gov/statutes/statutes/182/0175</a>	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y	18"	



Know what's below. Call before you dig.  Expand public awareness by visiting call811.com. You will find a variety of downloadable elements available for use free in your company/organization's existing campaigns.  	TICKETS			STATE LAWS & PROVISIONS									NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED				Tolerance Zone (either side of the utility plus the width of the utility)			
	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	
WYOMING / One Call of Wyoming / 800-849-2476 / Tickets Fax: 800-217-3719																								
Website: onecallofwyoming.com Hours: 24 hours Advance Notice: 2 full business days Marks Valid: 14 business days Law Link: onecallofwyoming.com/wp-content/uploads/2019/08/2019_Wyoming_Law.pdf	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	N	24"	
GULFSAFE / Covers state and federal waters in the Gulf of Mexico, the Florida Straits and Atlantic Coast / 888-910-4853 (GULF)																								
Website: gulfsafe.org Hours: 24 hours Advance Notice: 7 working days Marks Valid: Not Applicable Law Link: Not Applicable	N	Y	N	N	N	N	N	Y	N	N	N	N	Y	N/A	N/A	N/A	N/A	Y	Y	Y	N/A	N	N/A	

Canada One Call  Click Before You Dig Cliquez Avant de Creuser  Canadian One Call Centres Committee	TICKETS			PROVINCIAL LAWS & PROVISIONS									NOTIFICATION EXEMPTIONS				NOTIFICATIONS ACCEPTED				Tolerance Zone (either side of the utility plus the width of the utility)			
	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	
ALBERTA / Alberta One Call Corporation / 800-242-3447																								
Website: albertaonecall.com Hours: 8:00 AM-4:00PM, M-F (Emergency: 24/7) Advance Notice: 3 full working days Marks Valid: 14 days(extendable to 30 if certain conditions are met)	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	N	N	N	*	Y	Y	Y	N	Y	1m (39")	
* 300 mm (12") hand tools only																								
BRITISH COLUMBIA / BC One Call / 800-474-6886 / Tickets Fax: 604-451-0344																								
Website: bconeall.bc.ca Hours: 24 hours / 7 days Advance Notice: 3 working days excluding Saturdays, Sundays and holidays Marks Valid: 30 calendar days	Y	Y	N	Y	N	Y	N	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y	N	N	VARIES	
MANITOBA / Click Before You Dig Manitoba / 800-940-3447																								
Website: ClickBeforeYouDigMB.com Hours: 8:00 AM - 5:00 PM Advance Notice: 3 full working days excluding weekends and holidays Marks Valid: Determined by member	N	Y	Y	Y	N	N	N	N	N	Y	Y	N	N	N	N	N	N	Y	N	Y	N	Y	VARIES	
ONTARIO / Ontario One Call / 800-400-2255																								
Website: on1call.com Hours: 24 hours, 365 days Advance Notice: 5 days Marks Valid: Determined by Member	N	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y		
QUEBEC / Info-Excavation / 800-663-9228																								
Website: info-ex.com Hours: 24 hours/7 days Advance Notice: 72 hours (3 working days) Marks Valid: 180 days	N	Y	Y	Y	N	Y	N	N	N	Y	N	Y	N	N	N	N	N	Y	Y	Y	Y	Y	1m (39")	
SASKATCHEWAN / Sask 1st Call / 866-828-4888																								
Website: sask1stcall.com Hours: December-March 8:00am - 5:00pm, April-November 7:00am - 5:00pm Advance Notice: 2 full working days Marks Valid: 10 working days	N	Y	Y	Y	N	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	Y	N	N		

# PIPELINE OPERATOR CONTACT DIRECTORY

Company	EMERGENCY	NON-EMERGENCY	WEB ADDRESS
ADM	(563) 242-1121	(563) 241-1775	<a href="http://www.adm.com">www.adm.com</a>
AE2S Water Solutions	(218) 791-7372	(701) 746-8087	<a href="http://www.AE2SWaterSolutions.com">www.AE2SWaterSolutions.com</a>
Aera Energy, LLC	(800) 247-5977	(661) 665-5103	<a href="http://www.aeraenergy.com">www.aeraenergy.com</a>
Aka Energy Group, LLC	(970) 737-2601	(970) 764-6820	<a href="http://www.akaenergy.com">www.akaenergy.com</a>
Alliance Pipeline L.P.	(800) 884-8811	(952) 983-1026	<a href="http://www.alliancepipeline.com">www.alliancepipeline.com</a>
Alliant Energy - IPL	(319) 365-8040	(800) 255-4268	<a href="http://www.alliantenergy.com">www.alliantenergy.com</a>
Alliant Energy - WPL	(800) 758-1576	(800) 255-4268	<a href="http://www.alliantenergy.com">www.alliantenergy.com</a>
Amplify Energy Corp.	(307) 328-2348	(307) 328-2348	<a href="http://www.amplifyenergy.com/">www.amplifyenergy.com/</a>
Arrow Pipeline, LLC	(866) 234-7473	(701) 675-8602	<a href="http://www.crestwoodlp.com">www.crestwoodlp.com</a>
Atmos Energy Corporation	(866) 322-8667	(888) 286-6700	<a href="http://www.atmosenergy.com">www.atmosenergy.com</a>
Aux Sable Midstream	(701) 628-9380	(701) 628-9393	<a href="http://www.auxsable.com">www.auxsable.com</a>
Avista Utilities	(800) 227-9187	(800) 227-9187	<a href="http://www.myavista.com">www.myavista.com</a>
Basin Electric Power Cooperative	(800) 339-5616	(701) 557-5895	<a href="http://www.basinelectric.com">www.basinelectric.com</a>
Bayou Midstream	(888) 489-2747	(346) 249-3200	<a href="http://www.bayoumidstream.com">www.bayoumidstream.com</a>
Belle Fourche Pipeline Co	(866) 305-3741	(701) 575-2205	<a href="http://www.truecos.com">www.truecos.com</a>
Black Hills Colorado IPP, LLC	(719) 696-3220	(719) 696-3209	<a href="http://www.blackhillsenergy.com">www.blackhillsenergy.com</a>
Black Hills Energy	(800) 694-8989	(303) 566-3509	<a href="http://www.blackhillsenergy.com">www.blackhillsenergy.com</a>
Black Hills Energy - IA Gas	(800) 694-8989	(888) 890-5554	<a href="http://www.blackhillsenergy.com">www.blackhillsenergy.com</a>
Black Hills Power dba Black Hills Energy	(307) 757-3010	(307) 757-3010	<a href="http://www.blackhillspower.com">www.blackhillspower.com</a>
Blueknight Energy Partners	(855) 999-2537	(918) 237-4000	<a href="http://www.bkepc.com">www.bkepc.com</a>
BOE Pipeline, LLC	(844) 220-9234	(701) 300-1333	<a href="http://www.boemidstream.com">www.boemidstream.com</a>
Bridger Pipeline LLC	(866) 305-3741	(701) 575-2205	<a href="http://www.truecos.com">www.truecos.com</a>
Bridger Swan Ranch, LLC	(307) 634-5305	(307) 634-5305	<a href="http://www.granitepeakindustries.com">www.granitepeakindustries.com</a>
Butte Pipe Line Company	(866) 305-3741	(701) 575-2205	<a href="http://www.truecos.com">www.truecos.com</a>
Caliber Midstream Partners, LP	(866) 535-2522	(303) 628-1410	<a href="http://www.calibermidstream.com">www.calibermidstream.com</a>
California Resources Central Valley	(661) 763-6911	(661) 763-6363	<a href="http://www.crc.com">www.crc.com</a>
California Resources Elk Hills, LLC	(661) 763-6911	(661) 763-6363	<a href="http://www.crc.com">www.crc.com</a>
California Resources Ventura Basin	(844) 422-5737	(805) 525-8008	<a href="http://www.crc.com">www.crc.com</a>
Calumet Montana Refining, LLC	(406) 761-4100	(406) 454-9887	<a href="http://www.montanarefining.com">www.montanarefining.com</a>
Carbon California	(805) 531-3712	(805) 794-8593	<a href="http://www.carbonenergycorp.com">www.carbonenergycorp.com</a>
Cascade Natural Gas	(888) 522-1130	(888) 522-1130	<a href="http://www.cngc.com">www.cngc.com</a>
Cedar Falls Utilities	(319) 268-6999	(319) 268-5280	<a href="http://www.cfu.net">www.cfu.net</a>
Cenex Pipeline, LLC	(800) 421-4122	(406) 628-5443	<a href="http://www.chsinc.com">www.chsinc.com</a>
CenterPoint Energy - OK	(888) 876-5786	(866) 275-5265	<a href="http://www.centerpointenergy.com/safety">www.centerpointenergy.com/safety</a>
Central Iowa Power Cooperative	(641) 782-5518	(641) 782-2158	<a href="http://www.cipco.net">www.cipco.net</a>
Central Valley Gas Storage	(855) 303-2847	(530) 439-2607	<a href="http://www.cvgasstorage.com">www.cvgasstorage.com</a>
Centurion Pipeline L.P.	(800) 765-8695	(713) 215-7000	<a href="http://www.centurionpipeline.com">www.centurionpipeline.com</a>
Chesapeake Energy Corporation	(800) 566-9306	(405) 935-1522	<a href="http://www.chk.com">www.chk.com</a>
Chevron Pipe Line Company - CO	(800) 762-3404	(970) 675-3777	<a href="http://www.chevron.com">www.chevron.com</a>
Chevron Pipe Line Company - UT	(800) 762-3404	(801) 975-2324	<a href="http://www.chevron.com">www.chevron.com</a>
Cheyenne Rail Hub, LLC	(307) 634-5305	(307) 634-5305	<a href="http://www.granitepeakindustries.com">www.granitepeakindustries.com</a>
CHS MRI Pipelines	(844) 721-6611	(855) 424-7747	<a href="http://www.chsinc.com">www.chsinc.com</a>
City of Blanding	(435) 678-2916	(435) 678-2791	<a href="http://www.blanding-ut.gov">www.blanding-ut.gov</a>
City of Ellensburg	(509) 925-8534	(509) 962-7124	<a href="http://www.ci.ellensburg.wa.us">www.ci.ellensburg.wa.us</a>
City of Fort Morgan	(970) 867-4350	(970) 542-3910	<a href="http://www.cityoffortmorgan.com">www.cityoffortmorgan.com</a>
City of Lake City, Natural Gas Dept.	(386) 758-5405	(386) 758-5405	<a href="http://www.lcfla.com">www.lcfla.com</a>
City of Sioux Falls	(605) 941-2351	(605) 261-2980	<a href="http://www.siouxfalls.org">www.siouxfalls.org</a>
City of Walsenburg	(719) 738-1044	(719) 738-1048	<a href="http://www.cityofwalsenburg.com">www.cityofwalsenburg.com</a>
City of Waukeg	(515) 249-1212	(515) 978-7920	<a href="http://www.waukeg.org">www.waukeg.org</a>
Cobra Oil & Gas Corporation	(517) 563-8381	(989) 345-7903	<a href="http://www.chevron.com">www.chevron.com</a>
Colorado Interstate Gas - MT, UT and Western WY	(877) 712-2288	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Colorado Interstate Gas - Ruby Pipeline	(877) 712-2288	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Colorado Interstate Gas - Western CO	(877) 712-2288	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Colorado Interstate Gas - Western OK	(877) 712-2288	(806) 731-8910	<a href="http://www.kindermorgan.com/public_awareness/">www.kindermorgan.com/public_awareness/</a>
Colorado Natural Gas	(800) 720-8193	(207) 621-8000	<a href="http://www.coloradonaturalgas.com">www.coloradonaturalgas.com</a>
Colorado Springs Utilities	(719) 448-4800	(719) 448-4800	<a href="http://www.csu.org">www.csu.org</a>
ConocoPhillips - UT	(281) 293-1000	(435) 613-2905	<a href="http://www.conocophillips.com">www.conocophillips.com</a>
Continuum Midstream, LLC	(877) 587-0026	(806) 278-8266	<a href="http://www.cityofwalsenburg.com">www.cityofwalsenburg.com</a>
CPN Pipeline Company	(877) 432-5555	(707) 374-1505	<a href="http://www.calpine.com">www.calpine.com</a>
Crestwood Dakota Pipeline, LLC	(866) 234-7473	(701) 859-5001	<a href="http://www.crestwoodlp.com">www.crestwoodlp.com</a>
Crooks Municipal Utilities	(605) 359-2371	(605) 543-5238	<a href="http://www.cityofcrooks.net">www.cityofcrooks.net</a>
Dakota Access, LLC - ND	(800) 753-5531	(346) 231-3814	<a href="http://www.energytransfer.com">www.energytransfer.com</a>
Dakota Access, LLC - SD	(800) 753-5531	(346) 231-3811	<a href="http://www.energytransfer.com">www.energytransfer.com</a>
Dakota Gasification Company	(866) 747-3546	(701) 880-1129	<a href="http://www.dakotagas.com/Gas_Pipeline">www.dakotagas.com/Gas_Pipeline</a>
Devon Energy Production Company LP	(800) 214-2154	(307) 857-2228	<a href="http://www.dvn.com">www.dvn.com</a>
Dick Brown Technical Services	(888) 764-5147	(707) 249-8333	<a href="http://www.dbts.com">www.dbts.com</a>
Divide Creek Gathering LLC	(844) 663-0191	(281) 664-6839	<a href="http://www.sginterests.com">www.sginterests.com</a>
Dominion Energy Idaho	(800) 767-1689	(801) 324-5000	<a href="http://www.dominionenergy.com">www.dominionenergy.com</a>
Dominion Energy Questar Pipeline, LLC	(800) 300-2025	(801) 324-5000	<a href="http://www.dominionenergy.com">www.dominionenergy.com</a>
Dominion Energy Utah	(800) 767-1689	(801) 324-5000	<a href="http://www.dominionenergy.com">www.dominionenergy.com</a>
Dominion Energy Wyoming	(800) 767-1689	(801) 324-5000	<a href="http://www.dominionenergy.com">www.dominionenergy.com</a>
E&B Natural Resources - Kern	(661) 392-7575	(661) 679-1700	<a href="http://www.ebresources.com">www.ebresources.com</a>
E&B Natural Resources - LA - HBOC	(310) 286-9114	(661) 679-1700	<a href="http://www.ebresources.com">www.ebresources.com</a>
E&B Natural Resources - LA - Packard	(424) 702-1017	(661) 679-1700	<a href="http://www.ebresources.com">www.ebresources.com</a>

• If you would like any additional information from a pipeline member, call or visit the links above.



COMPañÍA	EMERGENCIA	NO EMERGENCIA	DIRECCIÓN DE INTERNET
E&B Natural Resources - LA - San Vicente	(424) 702-1018	(661) 679-1700	<a href="http://www.ebresources.com">www.ebresources.com</a>
El Paso Natural Gas - CO and NM	(800) 334-8047	(713) 420-5433	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
El Paso Natural Gas - OK	(800) 334-8047	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
El Paso Natural Gas - Western OK	(800) 334-8047	(806) 731-8910	<a href="http://www.kindermorgan.com/public_awareness/">www.kindermorgan.com/public_awareness/</a>
Elk Hills Power, LLC	(661) 763-6911	(661) 763-6363	<a href="http://www.crc.com">www.crc.com</a>
Enable Bakken Crude Services	(701) 842-6916	(800) 829-9922	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Enable Gas Gathering	(800) 522-8048	(800) 829-9922	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Enable Gas Transmission	(800) 474-1954	(800) 829-9922	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Enable Midstream Partners	(800) 474-1954	(800) 829-9922	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Enable Oklahoma Intrastate Transmission	(800) 522-8048	(800) 829-9922	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Enbridge Energy	(800) 858-5253	(715) 394-1451	<a href="http://www.enbridgeus.com">www.enbridgeus.com</a>
Enbridge Pipelines (North Dakota) LLC	(800) 858-5253	(701) 857-0800	<a href="http://www.enbridge.com">www.enbridge.com</a>
Energy Operations Management Inc	(877) 723-3344	(916) 859-4700	<a href="http://www.enablemidstream.com">www.enablemidstream.com</a>
Energy Operations Management Nevada LLC	(877) 723-3344	(916) 859-4700	<a href="http://www.egas.net">www.egas.net</a>
Energy West Montana	(800) 570-5688	(406) 791-7500	<a href="http://www.egas.net">www.egas.net</a>
Enterprise - Jonah Gas Gathering	(800) 203-1347	(307) 360-6552	<a href="http://www.enterpriseproducts.com">www.enterpriseproducts.com</a>
Enterprise - Mid America Pipeline - CO, UT, WY	(888) 883-6308	(307) 362-2703	<a href="http://www.enterpriseproducts.com">www.enterpriseproducts.com</a>
Enterprise Products - CO	(800) 546-3482	(713) 381-2802	<a href="http://www.enterpriseproducts.com">www.enterpriseproducts.com</a>
Enterprise Products - Piceance Gas Gathering	(888) 883-6308	(888) 806-8152	<a href="http://www.enterpriseproducts.com">www.enterpriseproducts.com</a>
EOG Resources - CO and WY	(307) 266-7406	(970) 895-2247	<a href="http://www.eogresources.com">www.eogresources.com</a>
EOG Resources - ND	(866) 994-4775	(701) 628-1635	<a href="http://www.eogresources.com">www.eogresources.com</a>
EOG Resources - OK	(800) 225-8314	(405) 246-3100	<a href="http://www.eogresources.com">www.eogresources.com</a>
Equinor Energy LP	(855) 750-8024	(701) 875-3501	<a href="http://www.equinor.com">www.equinor.com</a>
Express Pipeline - Enbridge	(800) 794-3827	(800) 700-8666	<a href="http://www.enbridge.com">www.enbridge.com</a>
ExxonMobil Pipeline Company - MT	(800) 537-5200	(406) 657-5400	<a href="http://www.exxonmobil.com">www.exxonmobil.com</a>
ExxonMobil Production	(307) 276-6000	(307) 276-6242	<a href="http://www.exxonmobil.com">www.exxonmobil.com</a>
FDL Operating, LLC - Midwest	(307) 437-9500	(307) 262-9786	<a href="http://www.fdlenergy.com">www.fdlenergy.com</a>
FDL Operating, LLC - Monell	(307) 212-3486	(307) 705-1210	<a href="http://www.fdlenergy.com">www.fdlenergy.com</a>
Fort Union Gas Gathering	(307) 682-9710	(307) 670-6022	<a href="http://www.fortuniongg.com">www.fortuniongg.com</a>
Fountain Valley Power LLC	(303) 594-2655	(303) 922-0630	<a href="http://www.southwestgen.com">www.southwestgen.com</a>
Freeport-McMoran Oil & Gas	(805) 739-9111	(805) 934-8288	<a href="http://www.fcx.com">www.fcx.com</a>
Front Range Pipeline, LLC	(800) 421-4122	(406) 628-5443	<a href="http://www.chsinc.com">www.chsinc.com</a>
Frontier Field Services	(800) 503-5545	(575) 676-3528	<a href="http://www.durangomidstream.com">www.durangomidstream.com</a>
Garretson Natural Gas	(605) 594-6723	(605) 594-6723	<a href="http://www.garretsonsd.com">www.garretsonsd.com</a>
Genesis Alkali LLC	(307) 875-8150	(307) 872-2131	<a href="http://www.alkali.tronox.com">www.alkali.tronox.com</a>
Georgia-Pacific - Camas Paper	(360) 834-8414	(360) 834-3021	<a href="http://www.gp.com">www.gp.com</a>
Glass Mountain Pipeline LLC	(888) 991-1628	(214) 660-8800	<a href="http://www.nesmidstream.com">www.nesmidstream.com</a>
Great Plains Natural Gas Company	(877) 267-4764	(701) 222-7655	<a href="http://www.gpng.com">www.gpng.com</a>
Grove Municipal Service Authority	(918) 801-5404	(918) 786-6107	<a href="http://www.cityofgrove.com">www.cityofgrove.com</a>
Harlan Municipal Utilities	(712) 755-5182	(712) 733-0026	<a href="http://www.harlanet.com">www.harlanet.com</a>
Havre Pipeline Company LLC	(406) 357-2233	(406) 357-3643	<a href="http://www.hawaiielectriclight.com">www.hawaiielectriclight.com</a>
Hawaii Electric Light Co.	(808) 969-0413	(808) 969-6999	<a href="http://www.hawaiielectriclight.com">www.hawaiielectriclight.com</a>
Hawaii Gas	(808) 526-0066	(808) 535-5933	<a href="http://www.hawaiigas.com">www.hawaiigas.com</a>
Hawaiian Electric Company, Inc	(808) 543-7685	(808) 548-7311	<a href="http://www.hawaiianelectric.com">www.hawaiianelectric.com</a>
Hawthorn Oil Transportation Inc. - ND	(888) 814-0188	(701) 629-9930	<a href="http://www.hawthornoiltransportation.com">www.hawthornoiltransportation.com</a>
Hess Corporation	(800) 406-1697	(701) 664-6200	<a href="http://www.hess.com">www.hess.com</a>
Hilcorp Energy Company	(505) 324-5170	(505) 599-2400	<a href="http://www.hilcorpenergy.com">www.hilcorpenergy.com</a>
Hildale - Colorado City Gas Department	(435) 467-1160	(435) 874-1160	<a href="http://www.humboldttd.com">www.humboldttd.com</a>
Holly Energy Partners	(877) 748-4464	(575) 748-8950	<a href="http://www.hollyenergy.com">www.hollyenergy.com</a>
Humboldt Municipal Gas Utility	(888) 320-1490	(605) 661-5268	<a href="http://www.humboldttd.com">www.humboldttd.com</a>
Intermountain Gas Company	(877) 777-7442	(877) 777-7442	<a href="http://www.intgas.com">www.intgas.com</a>
Island Energy Services	(808) 682-4711	(808) 682-2227	<a href="http://www.islandenergyservices.com">www.islandenergyservices.com</a>
Jackalope Gas Gathering Services, LLC	(866) 234-7473	(817) 339-5570	<a href="http://www.crestwoodlp.com">www.crestwoodlp.com</a>
Jayhawk Pipeline	(888) 542-9575	(855) 424-7747	<a href="http://www.chsinc.com">www.chsinc.com</a>
Kansas Gas Service	(888) 482-4950	(800) 794-4780	<a href="http://www.kansasgasservice.com">www.kansasgasservice.com</a>
Kaw Pipeline	(888) 542-9575	(855) 424-7747	<a href="http://www.chsinc.com">www.chsinc.com</a>
KB Pipeline	(800) 433-0252	(800) 433-0252	<a href="http://www.portlandgeneral.com">www.portlandgeneral.com</a>
Kelton Gas Services, LLC	(800) 460-3601	(806) 826-3230	<a href="http://www.durangomidstream.com">www.durangomidstream.com</a>
Kern River Gas Transmission Company	(800) 272-4817	(800) 420-7500	<a href="http://www.kernrivergas.com">www.kernrivergas.com</a>
Kinder Morgan Altamont	(435) 454-3927	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Kinder Morgan C02 Company, LP	(877) 390-8640	(970) 882-2464	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Kinder Morgan Cochin Pipeline - IA	(800) 265-6000	(713) 369-9000	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Kinder Morgan Cochin Pipeline - ND	(800) 265-6000	(701) 252-9013	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Legacy Reserves Operating LP	(307) 527-2873	(307) 587-7232	<a href="http://www.legacylp.com">www.legacylp.com</a>
Liberty Utilities	(855) 644-8134	(855) 872-3242	<a href="http://www.libertyutilities.com">www.libertyutilities.com</a>
Lumen Midstream Partners - KS	(316) 542-0395	(316) 542-0395	<a href="http://www.durangomidstream.com">www.durangomidstream.com</a>
Macpherson Oil Company	(661) 201-8320	(661) 201-8320	<a href="http://www.macphersonenergy.com">www.macphersonenergy.com</a>
Magellan Midstream Partners LP - ND	(800) 720-2417	(701) 282-7134	<a href="http://www.magellanlp.com">www.magellanlp.com</a>
Magellan Midstream Partners LP - WY and SD	(800) 720-2417	(918) 574-7000	<a href="http://www.magellanlp.com">www.magellanlp.com</a>
Marathon Pipe Line - Northwest Products	(800) 725-1514	(855) 888-8056	<a href="http://www.marathonpipeline.com">www.marathonpipeline.com</a>
Marathon Pipe Line - Salt Lake Short Haul and Core	(800) 725-1514	(855) 888-8056	<a href="http://www.marathonpipeline.com">www.marathonpipeline.com</a>
Matrix Oil Corporation	(805) 586-0674	(805) 798-3592	<a href="http://www.matrixoil.com">www.matrixoil.com</a>
Mid American Energy Company	(800) 595-5325	(888) 427-5632	<a href="http://www.midamericanenergy.com">www.midamericanenergy.com</a>
Midstream Energy Partners	(866) 295-2176	(661) 765-4087	<a href="http://www.migc.com">www.migc.com</a>

• Si quisiera más información sobre un miembro de tubería, llame o visite los enlaces arriba.

# PIPELINE OPERATOR CONTACT DIRECTORY

Company	EMERGENCY	NON-EMERGENCY	WEB ADDRESS
Midwest Energy Inc.	(800) 222-3121	(800) 222-3121	<a href="http://www.mwenergy.com">www.mwenergy.com</a>
MIGC	(307) 682-9710	(307) 670-6022	<a href="http://www.migc.com">www.migc.com</a>
Montana Dakota Utilities Company	(800) 638-3278	(701) 222-7655	<a href="http://www.montana-dakota.com">www.montana-dakota.com</a>
Mountain Gas Resources, Inc.	(307) 870-2859	(307) 352-3322	<a href="http://www.westernmidstream.com">www.westernmidstream.com</a>
MPLX - Andeavor Field Services LLC	(800) 725-1514	(800) 840-3482	<a href="http://www.marathonpetroleum.com">www.marathonpetroleum.com</a>
MPLX - Tesoro Logistics Operations, LLC	(866) 283-7676	(701) 627-2754	<a href="http://www.marathonpetroleum.com">www.marathonpetroleum.com</a>
Naftex Operating Company	(661) 363-8801	(661) 809-4956	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Natural Gas Pipeline Co of Am - Western OK	(800) 733-2490	(806) 731-8910	<a href="http://www.kindermorgan.com/public_awareness/">www.kindermorgan.com/public_awareness/</a>
Natural Gas Pipeline Co of America - IA	(866) 775-5791	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Natural Gas Pipeline Co of America - OK	(800) 733-2490	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Nemaha Gas Gathering System, LLC	(479) 783-4191	(479) 783-4191	<a href="http://www.nephi.utah.gov">www.nephi.utah.gov</a>
NEOKC Pipeline, LLC	(405) 239-6001	(405) 239-6001	<a href="http://www.xtoenergy.com">www.xtoenergy.com</a>
Nephi City Gas	(435) 623-0822	(435) 623-0822	<a href="http://www.nephi.utah.gov">www.nephi.utah.gov</a>
Nesson Gathering System LLC	(701) 664-3139	(701) 664-3139	<a href="http://www.xtoenergy.com">www.xtoenergy.com</a>
NGL Crude Terminals, LLC	(888) 529-5558	(918) 225-0244	<a href="http://www.nglenergypartners.com">www.nglenergypartners.com</a>
Northern California Power Agency	(888) 764-5147	(661) 809-4956	<a href="http://www.ncpa.com">www.ncpa.com</a>
Northern Natural Gas - IA	(888) 367-6671	(888) 689-5175	<a href="http://www.northernnaturalgas.com">www.northernnaturalgas.com</a>
Northern Natural Gas - SD	(888) 367-6671	(888) 689-5175	<a href="http://www.northernnaturalgas.com">www.northernnaturalgas.com</a>
NorthWestern Energy - MT	(888) 467-2669	(406) 497-2446	<a href="http://www.northwesternenergy.com">www.northwesternenergy.com</a>
NorthWestern Energy - NE and SD	(800) 245-6977	(406) 497-2446	<a href="http://www.northwesternenergy.com">www.northwesternenergy.com</a>
NuStar Logistics, L.P.	(800) 481-0038	(361) 290-0604	<a href="http://www.nustarenergy.com">www.nustarenergy.com</a>
NuStar Pipeline Operating Partnership L.P.	(800) 759-0033	(316) 721-7068	<a href="http://www.nustarenergy.com">www.nustarenergy.com</a>
NW Natural	(503) 226-4211	(503) 226-4211	<a href="http://www.nwnatural.com">www.nwnatural.com</a>
Oasis Petroleum	(866) 584-8016	(855) 209-8370	<a href="http://www.oasispetroleum.com">www.oasispetroleum.com</a>
Oklahoma Gas Gathering Llc	(405) 380-2284	(405) 380-2284	<a href="http://www.oneok.com">www.oneok.com</a>
Oklahoma Natural Gas	(800) 458-4251	(800) 664-5463	<a href="http://www.oklahomanaturalgas.com">www.oklahomanaturalgas.com</a>
ONEOK - North System	(888) 844-5658	(918) 732-1451	<a href="http://www.oneok.com">www.oneok.com</a>
ONEOK Field Services Company	(888) 675-3302	(918) 588-7000	<a href="http://www.oneok.com">www.oneok.com</a>
ONEOK Gas Transportation	(888) 215-5137	(918) 561-8019	<a href="http://www.oneok.com">www.oneok.com</a>
ONEOK NGL Pipeline, L.L.C.	(855) 348-7258	(855) 689-1298	<a href="http://www.oneok.com">www.oneok.com</a>
ONEOK Rockies Midstream	(800) 778-7834	(406) 433-3664	<a href="http://www.oneok.com">www.oneok.com</a>
ONEOK Rockies Midstream - Wyoming	(866) 575-6465	(307) 687-3103	<a href="http://www.oneok.com">www.oneok.com</a>
Overland Pass Pipeline Company	(800) 635-7400	(307) 872-2833	<a href="http://www.williams.com/overlandpass/">www.williams.com/overlandpass/</a>
Pacific Gas and Electric Company	(800) 743-5000	(800) 743-5000	<a href="http://www.pge.com/pipelinesafety">www.pge.com/pipelinesafety</a>
Paradox Midstream	(435) 587-2237	(970) 529-3419	<a href="http://www.paradoxresources.com">www.paradoxresources.com</a>
Paradox Resources LLC	(866) 774-8385	(435) 686-7600	<a href="http://www.paradoxresources.com">www.paradoxresources.com</a>
Pecan Pipeline Company - ND	(866) 899-2626	(701) 628-1635	<a href="http://www.pecanpipeline.com">www.pecanpipeline.com</a>
Petro - Hunt, LLC	(701) 863-6500	(701) 863-6500	<a href="http://www.petrohunt.com">www.petrohunt.com</a>
Phillips Pipe Line Co - WY and MT	(877) 267-2290	(406) 855-6963	<a href="http://www.phillips66.com">www.phillips66.com</a>
Pinedale Natural Gas, Inc.	(307) 367-4427	(970) 928-9208	<a href="http://www.pinedalegas.com">www.pinedalegas.com</a>
Pioneer Pipe Line Company	(877) 267-2290	(801) 299-3627	<a href="http://www.phillips66.com">www.phillips66.com</a>
Plains Pipeline, L.P.	(800) 708-5071	(713) 993-5098	<a href="http://www.plainsallamerican.com">www.plainsallamerican.com</a>
Platte Pipeline - Enbridge	(800) 794-3827	(800) 700-8666	<a href="http://www.enbridge.com">www.enbridge.com</a>
Platte River Power Authority	(970) 229-1733	(970) 226-4000	<a href="http://www.prpa.org">www.prpa.org</a>
Prospector Pipeline Company	(877) 723-3344	(916) 859-4700	<a href="http://www.redcedargathering.com">www.redcedargathering.com</a>
Puget Sound Energy	(800) 710-1515	(888) 225-5773	<a href="http://www.pse.com">www.pse.com</a>
Red Butte Pipe Line, LLC	(866) 628-1693	(469) 614-2240	<a href="http://www.scmidstream.com">www.scmidstream.com</a>
Red Cedar Gathering Company	(970) 382-0828	(970) 764-6900	<a href="http://www.redcedargathering.com">www.redcedargathering.com</a>
Redding Electric Utilities	(530) 245-7009	(661) 809-4956	<a href="http://www.reupower.com">www.reupower.com</a>
Ringwood Gathering Company	(800) 967-8493	(580) 438-2345	<a href="http://www.ringwoodgathering.com">www.ringwoodgathering.com</a>
Roaring Fork Midstream, LLC	(877) 375-0488	(720) 923-5593	<a href="http://www.roaringforkmidstream.com">www.roaringforkmidstream.com</a>
Rose Rock Midstream, LP - CO	(800) 522-3883	(720) 613-7008	<a href="http://www.semgroupcorp.com">www.semgroupcorp.com</a>
Rose Rock Midstream, LP - ND	(800) 522-3883	(405) 945-6381	<a href="http://www.semgroup.com">www.semgroup.com</a>
Running Horse Pipeline, LLC	(800) 889-7437	(928) 871-4880	<a href="http://www.nnogc.com">www.nnogc.com</a>
San Diego Gas & Electric	(888) 611-7343	(800) 411-7343	<a href="http://www.sdge.com">www.sdge.com</a>
San Pedro Bay Pipeline C/O Beta Offshore	(562) 606-5711	(562) 628-1534	<a href="http://www.betaoffshore.com">www.betaoffshore.com</a>
SandRidge Energy	(877) 435-7080	(405) 429-5500	<a href="http://www.sandridgeenergy.com">www.sandridgeenergy.com</a>
Savage Bakken Connector, Inc	(701) 774-9316	(701) 774-9311	<a href="http://www.savageservices.com">www.savageservices.com</a>
Scissortail Energy	(855) 737-9555	(800) 276-9927	<a href="http://www.kindermorgan.com">www.kindermorgan.com</a>
Seneca Resources Company, LLC	(888) 595-8595	(661) 473-7005	<a href="http://www.natfuel.com/seneca">http://www.natfuel.com/seneca</a>
Signature Flight Support	(808) 836-1830	(808) 226-3981	<a href="http://www.signatureflight.com">www.signatureflight.com</a>
Silicon Valley Power	(408) 615-6550	(408) 615-5640	<a href="http://www.siliconvalleypower.com">www.siliconvalleypower.com</a>
Silver Creek Midstream PR, LLC	(866) 628-1693	(469) 614-2240	<a href="http://www.SCMidstream.com">www.SCMidstream.com</a>
Sinclair Pipeline Company	(800) 321-3994	(307) 328-3643	<a href="http://www.sinclairoil.com/pipelines.html">www.sinclairoil.com/pipelines.html</a>
SoCal Holdings, LLC / LA Basin	(562) 624-3452	(562) 624-3400	<a href="http://www.crc.com">www.crc.com</a>
South Dakota Intrastate Pipeline Co.	(800) 852-0949	(605) 224-0949	<a href="http://www.sdipco.com">www.sdipco.com</a>
Southern California Gas Company	(800) 427-2200	(800) 427-2200	<a href="http://www.socalgas.com">www.socalgas.com</a>
Southern Star Central Gas Pipeline	(800) 324-9696	(888) 885-6008	<a href="http://www.southernstar.com">www.southernstar.com</a>
Southwest Gas	(877) 860-6020	(877) 860-6020	<a href="http://www.swgas.com">www.swgas.com</a>
Spire	(800) 887-4173	(205) 326-2680	<a href="http://www.spireenergy.com">www.spireenergy.com</a>
St. Croix Gas	(715) 425-6177	(715) 425-6177	<a href="http://www.stcroixgas.com">www.stcroixgas.com</a>
Stephens Energy Group, LLC	(479) 783-4191	(479) 783-4191	<a href="http://www.suncor.com">www.suncor.com</a>
Stephens Production Company	(479) 783-4191	(479) 783-4191	<a href="http://www.superiorpipeline.com">www.superiorpipeline.com</a>
Sterling Energy Investments LLC	(877) 838-9381	(720) 881-7100	<a href="http://www.sterlingenergy.us">www.sterlingenergy.us</a>

• If you would like any additional information from a pipeline member, call or visit the links above.




COMPANÍA	EMERGENCIA	NO EMERGENCIA	DIRECCIÓN DE INTERNET
Summit Midstream	(888) 643-7929	(970) 858-3425	<a href="http://www.summitmidstream.com">www.summitmidstream.com</a>
Suncor Energy (U.S.A.) Pipeline Company	(866) 978-6267	(307) 775-8106	<a href="http://www.suncor.com">www.suncor.com</a>
Superior Pipeline Company	(866) 904-4514	(918) 382-7200	<a href="http://www.superiorpipeline.com">www.superiorpipeline.com</a>
Tallgrass Cheyenne Connector	(877) 436-2253	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Interstate Gas Transmission	(888) 763-3690	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Midstream - Powder River Gathering	(307) 687-9691	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Midstream - Redtail NGL Pipeline	(888) 763-3690	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Pony Express Pipeline	(855) 220-1762	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Powder River Gateway	(855) 220-1762	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Rockies Express Pipeline	(877) 436-2253	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Tallgrass Trailblazer Pipeline	(866) 299-3050	(303) 763-2950	<a href="http://www.tallgrassenergy.com">www.tallgrassenergy.com</a>
Targa Badlands LLC	(866) 957-3133	(701) 842-3315	<a href="http://www.targaresources.com">www.targaresources.com</a>
TC Energy - Bison Pipeline	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
TC Energy - Gas Transmission Northwest	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
TC Energy - Keystone Pipeline	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
TC Energy - Keystone Pipeline XL	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
TC Energy - Northern Border Pipeline Co	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
TC Energy - Tuscarora Gas Transmission	(800) 447-8066	(855) 458-6715	<a href="http://www.transcanada.com/public-safety.html">http://www.transcanada.com/public-safety.html</a>
Texas Kansas Oklahoma Gas (TKO Gas)	(806) 244-4210	(806) 244-4210	<a href="http://www.tkogas.com">www.tkogas.com</a>
THUMS Long Beach Company	(562) 624-3452	(562) 624-3400	<a href="http://www.crc.com">www.crc.com</a>
Thunder Creek Gas Services, LLC	(877) 619-4680	(307) 687-0614	<a href="http://www.thundercreekgas.com">www.thundercreekgas.com</a>
Tidelands Oil Production Company	(562) 624-3452	(562) 624-3400	<a href="http://www.crc.com">www.crc.com</a>
Tidewater Terminal Company	(800) 562-1607	(360) 693-1491	<a href="http://www.tidewater.com">www.tidewater.com</a>
Timberland Gathering & Processing Inc.	(620) 624-3868	(620) 624-3868	<a href="http://www.timberlandgathering.com">www.timberlandgathering.com</a>
Town of Aguilar	(719) 941-4360	(719) 941-4360	<a href="http://www.aguilarco.us">www.aguilarco.us</a>
TransColorado Gas Transmission Co.	(800) 944-4817	(800) 276-9927	<a href="http://www.kindermorgan.com/public_awareness">www.kindermorgan.com/public_awareness</a>
TRP - OK Properties LLC	(405) 535-9402	(405) 360-2784	<a href="http://www.utahgascorp.com">www.utahgascorp.com</a>
UNEV Pipeline LLC	(877) 748-4464	(575) 748-8950	<a href="http://www.hollyenergy.com">www.hollyenergy.com</a>
United States Gypsum Company	(866) 650-6005	(503) 556-4360	<a href="http://www.usg.com">www.usg.com</a>
Urban Oil & Gas	(435) 820-9801	(435) 636-2400	<a href="http://www.urbanoilandgas.com">www.urbanoilandgas.com</a>
Utah Associated Municipal Power Systems	(801) 925-4008	(801) 925-4012	<a href="http://www.uamps.com">www.uamps.com</a>
Utah Gas Corp	(970) 675-4482	(970) 675-4400	<a href="http://www.utahgascorp.com">www.utahgascorp.com</a>
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Vermont Gas Systems	(800) 639-8081	(802) 863-4511	<a href="http://www.vermontgas.com">www.vermontgas.com</a>
Viking Gas Transmission Company	(888) 417-6275	(218) 745-5082	<a href="http://www.vgt.nborder.com">www.vgt.nborder.com</a>
Walden Gas	(970) 723-4662	(970) 928-9208	<a href="http://www.pinedalegas.com">www.pinedalegas.com</a>
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Watertown Municipal Utilities	(605) 882-6233	(605) 882-6233	<a href="http://www.watertownsd.us">www.watertownsd.us</a>
WBI Energy	(888) 859-7291	(406) 359-7316	<a href="http://www.wbienergy.com">www.wbienergy.com</a>
Western Midstream - Colorado	(866) 504-8184	(970) 506-5980	<a href="http://www.westernmidstream.com">www.westernmidstream.com</a>
Western Midstream - Utah	(435) 781-9751	(435) 781-9733	<a href="http://www.westernmidstream.com">www.westernmidstream.com</a>
Western Midstream - Wyoming	(307) 682-9710	(307) 670-6042	<a href="http://www.westernmidstream.com">www.westernmidstream.com</a>
Westfield Gas & Electric	(413) 572-0000	(413) 572-0100	<a href="http://www.wgeld.org">www.wgeld.org</a>
White Cliffs Pipeline - CO	(800) 522-3883	(720) 613-7008	<a href="http://www.semgroupcorp.com">www.semgroupcorp.com</a>
White River Hub LLC	(800) 558-1913	(307) 352-7690	<a href="http://www.whiteriverhub.com">www.whiteriverhub.com</a>
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Williams Midstream - OK	(855) 427-2875	(800) 945-5467	<a href="http://www.williams.com/safety">www.williams.com/safety</a>
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Williams Northwest Pipeline - Sumas District	(800) 972-7733	(425) 836-4910	<a href="http://www.williams.com">www.williams.com</a>
Williams Northwest Pipeline - Vernal District	(800) 972-7733	(435) 781-3200	<a href="http://www.williams.com">www.williams.com</a>
Woodbine Municipal Natural Gas System	(712) 644-2537	(712) 647-2550	<a href="http://www.woodbineia.com">www.woodbineia.com</a>
Wyoming Gas Company	(307) 347-2416	(307) 335-3597	<a href="http://www.wyogas.com">www.wyogas.com</a>
Xcel Energy, NSP - Minnesota	(800) 895-2999	(800) 895-4999	<a href="http://www.xcelenergy.com">www.xcelenergy.com</a>
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