

ISSUE
NUMBER
SIXTEEN

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

Industry leaders from all stakeholder groups gather to bring the industry information, education and training focused on improving damage prevention efforts, sharing resources, facilitating open discussions, and improving safety within the excavating community.

- **VIRTUAL:**
March 22 - March 28, 2021
- **Phoenix, Arizona:**
February 28 - March 6, 2022
- **Tampa, Florida:**
February 02 - February 19, 2023



Learn more, or register for updates on future Damage Prevention Week events, at DamagePreventionWeek.com.

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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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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.

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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.



**Saving Lives
through Education**

Coming Spring 2021

THE virtual community for everyone interested in safe excavation and damage prevention to develop actionable solutions to protect our vital infrastructure resources.

- **Community:**
A place for those in the utility industry to learn, share, and grow.
- **Education:**
Members gain access to hundreds of hours of education.
- **Action:**
Conversations and content come together to move beyond ideas to meaningful actions.



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THE BIG Picture on Small Excavations

STAFF REPORT

Most people associate excavation with large construction equipment digging giant trenches or big holes. But there are many “small digs” that are performed every day and despite the small size, these excavations still pose a threat to safety.

It is vitally important that workers and homeowners engaged in these activities are aware of the hazards that digging poses. Some buried facilities are just inches below the surface and care is required when digging any type of hole. It is also important to note that, quite often, these small dig projects are located on property that is beyond the scope of 811 and may require a private utility locator to identify the location of buried utilities.

Digging in Your Backyard

Everyone knows improvements to your property increase your home’s value, as well as its curb appeal. Property improvements are a way of life for many homeowners, but failing to mark buried utilities before engaging in any small dig project could result in vital damage to plumbing, sewer, electric, cable, gas, oil, and water lines. Often the damage incurred affects not only the homeowner, but entire neighborhoods.

Imagine...

- **cutting the cable line for the entire neighborhood on Super Bowl Sunday**
- **severing a phone line that means 911**

cannot be reached for a neighbor in cardiac distress

- **damaging a water line that allows impurities to contaminate the drinking water**
- **piercing a gas line that causes an explosion, killing someone**

These seem like really big prices to pay when they can be avoided simply by making a call.

Small dig home excavation includes projects like pool building, mailbox installation, landscaping, fence installation, and deck building, but any project that involved ground disturbance of any kind should be preceded by a call to 811.

Farming... or Excavating?

Farming activities increasingly pose a risk to pipelines. Farm equipment is getting more powerful and can dig deeper. Compounding the problem, erosion and soil terrain modifications can reduce the soil covering an underground pipeline or cause the pipeline to shift.

Many activities farmers assume are regular farming activities are actually defined as excavating and require a call to 811, including:

- Fence building
- Drain tiling
- Terracing
- Grading
- Contouring
- Ripping
- Deep tilling
- Building or repairing roads
- Tree or stump removal
- Deep soil sampling
- Clearing or grubbing
- Grading
- Ditch cleaning
- Trenching
- Augering
- Burying livestock
- Installing cattle guards, dams or dugouts

This list is not comprehensive. When in doubt, always contact your local One Call. “Normal” farming activities are limited to things like plowing, planting, cultivating, and harvesting, as long as these activities occur at depths no greater than 12” typically, although state laws vary.

Fence Installation

While many believe contacting 811 is only for large-scale digging, safe dig laws require a locate request prior to any digging activities, including those activities associated with the installation of fencing:

- use of a post hole digger
- driving form pins
- digging shallow holes with a hand shovel
- removing old fencing or trees

Calling 811 is the law but beyond that, having utilities marked helps plan the job appropriately, dig safely around these facilities and avoid costly project delays, utility damages and potential fines.

Tent Rentals

Putting up a tent for a backyard party seems like a pretty simple process. It seldom occurs to people that it would require contacting 811. The truth is, a tent stake can be driven into the ground as deeply as three feet. At this depth, there is the potential for impacting and damaging a buried utility. For this reason, tent builders are required by law to locate buried facilities before installing a tent.

Trail Builders

Trail builders often have a unique excavation situation. The issues they encounter differ from major excavations because of their locale and environment. Often there is the perception that there are no utilities buried in the “middle of nowhere” or that grading a trail is not digging, and therefore doesn’t require excavation safety precautions. Further complicating matters, facilities in forests or remote areas are often

unmarked. Even if the location the facility was buried is known, it may be closer to the surface due to erosion and shifting.

Imagine the difficulty of trying to explain to the One Call center where you are when you are standing in the middle of a forest. Rural and natural environments cannot be described as easily as urban or suburban locales that can be easily identified as “the corner of 4th and Oak Street.”

Many trail builders now use Global Positioning Systems (GPS) to report their location and may be required to meet the facility locator and escort them to the areas where the work will be performed.

If You Hit a Buried Utility

Regardless of the project you are working on, if you hit a buried utility, immediately stop work, secure the area, call 911, call the utility, and do not resume work until you are given clearance to do so. Even if you do not see any visible damage to the buried facility, it is important to report it as even a small dent or scratch can compromise the long-term integrity of the pipe or cable.

Call 811 for Every Dig Project

Even if you believe you know where utilities are located and even if you have called before, the One Call center must be contacted with every project; erosion may reduce the depth of the facility and lines often shift over time. Whether digging in the backyard or the “back forty,” it is important to realize that there is ALWAYS the possibility that facilities lie beneath the surface. **ESG**



Recently a contractor asked me a simple question, “If I call for a One Call locate, why do I still keep hitting utility lines?” It is a question we often get, along with, “Why the need for private locating firms if there is a One Call System?” Both are fair questions, and the One Call System and private locating services should be viewed as two sides of the same coin, complementary services that together serve the damage prevention industry.

For over four decades the state One Call Systems have formed the backbone of the utility damage prevention efforts in the

around the utilities in a safe and prudent manner. Unfortunately, it is still possible for an excavator who follows all the One Call laws to damage buried utilities. While the One Call laws require utilities to mark the facilities that they own and maintain, this ownership ends at the point they connect with the customer’s systems. It is in this area where the One Call system stops, and the private system starts that excavators are vulnerable.

What are Private Utilities?

In most areas, private systems begin at the demarcation point that separates the pub-

utility map for a large manufacturing facility. All the lines indicating buried facilities shown on this map are privately owned by the facility and it is the facility who is ultimately responsible for the protection of these lines.

Even in situations where the utilities covered under the One Call system extend into private property, the lines may only be marked up to the property lines. This is especially the case in facilities such as ports, manufacturing, military, or other secure sites. The utility locator for these lines may not have the authorization, safety training,

ONE CALL VERSUS PRIVATE UTILITY LOCATING

BY MORGAN ABELE

United States. Those who participate in the One Call system are typically public utilities or municipalities. These generally include providers of power, communication, gas, steam, water, and sanitary systems. Excavators have come to rely upon this single point of contact for their excavation notifications.

For excavators, the process is simple and straightforward. Call the local One Call center, provide details about the excavation, wait the legally required time for the utility mark outs to be completed, confirm that all utilities have responded, and then dig

around the utilities from the customer’s system. For example, a homeowner is responsible for the portion of the water line that runs from the water meter to the house, the water company is responsible for everything leading up to the meter. This also applies to much larger sites. Universities, industrial and manufacturing sites, ports, military bases, refineries, and other areas outside of the public rights of way may all have private utility systems. These systems can include utility types as varied as product lines, drainpipes, fiber optic networks, security systems, steam lines, fire protection, conduits, etc. This image shows a portion of a

personal protective equipment or other site requirements needed to enter these facilities. In such circumstances the lines will not be located or marked.

An additional complication with private utility systems is personnel who manage and control these sites often do not realize they have utility lines that are not covered under the One Call system but are their responsibility. All these challenges put excavators in a difficult position. Even while meeting all their legal obligations under the One Call laws, they can still damage buried utility lines.

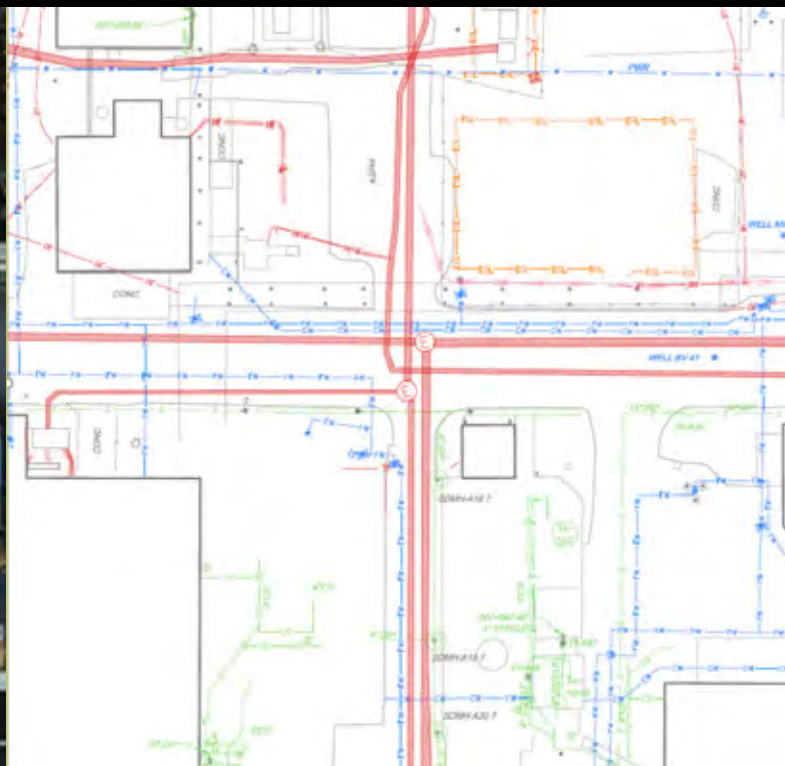
Private utilities can not only affect the bottom line for excavators from the standpoint of damages but also in some unintended areas as well. A contractor once bid a project on a college campus that was spread over 190-acres. The bid documents stated the excavator was “responsible for all utility locations.” The excavator assumed this meant they were responsible for placing the One Call notifications, which they had planned to do. Although the excavator did notify the local One Call center, the site only had a few hundred feet of utilities that fell under the One Call system, all remaining utilities were privately-owned, and the excavator

may be limited, inaccurate, out of date, or even non-existent.

Once all parties have discussed the private utilities, a plan for designating and marking these lines should be developed. Some sites are big enough to warrant their own locating staff, the excavator may have their own locate personnel or a third-party firm specializing in private utility locates can be contracted. In all cases, a One Call request must still be requested and maintained for the length of the project.

The facility owners should understand

Project engineers, designers, managers, and anyone else involved in the pre-construction design and planning of any project extending into areas where private utilities may exist should consider using Subsurface Utility Engineering (SUE) practices as outlined in American Society of Civil Engineers 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data. This allows for the identification of all One Call and private utilities on the site, facilitate designing around these utilities and identify any utility conflicts with the proposed excavation prior to the start of the project.



was responsible for the costs of having them marked out.

What can be done?

Excavators should assume that work done on property outside of the public rights of way contain private utilities. Prior to beginning any project, excavators should have discussions with the project managers, project engineers, and the property owner concerning the possibility of private utilities. Most property owners are unaware that they are responsible for the location of their private utilities. Relying solely on the existing site records is not recommended as these

which utilities are marked under the One Call system and which utilities are their responsibility. Facility owners should err on the side of caution if they are unsure of ownership of any utilities and assume that these lines belong to the facility. Available utility records should be kept together and in a safe and accessible area. The site should be located and mapped if there are missing or non-existent records. This will save time and money in the future, especially during emergencies or when planning new construction. Special care should be taken to identify any site critical utilities.

Damage prevention has always been a shared responsibility. It only works when excavators, utility owners and One Call centers work together. While the One Call centers are critical in the success of the damage prevention efforts, the system will not be truly successful until the private utility systems are identified and located to an equal degree. When that happens, we have a safer and better infrastructure system. **ESG**

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Pre-Excavation DOCUMENTATION

BY RON PETERSON

Once excavation begins, the scene changes forever. For this reason, pre-excavation documentation should be collected. In a court case, good pre-excavation documentation may not guarantee a win, failure to have it could cost you the win.

Call in the Experts

If you are an excavator, begin with making a request to the local One Call Center to have the work area marked. Include precise marking instructions as well as white lining whenever possible. If accurate instructions cannot be provided, a meet should be requested with appropriate personnel so the job site can be walked through with the locators (and facility owner if needed) so further instructions can be given. Once the instructions are provided and agreed to, all parties should sign off on the plan. If something changes that affects this agreement, all parties should be notified so a new plan can be developed.

Tracking locator responses is also extremely important for the excavator. More and more One Call systems now offer online positive response systems which allows the excavator to check on the status of the ticket by each utility's locator response digitally. It is important to document which parties have been notified as well as when and how they responded. This allows the excavator to know if someone does not respond so additional outreach can be made.

Excavator Documentation

After all facility owners have responded, it is critical that the scene is documented prior to any excavation work. Taking pictures and video along the path of proposed

excavation is a great way to start. All potential conflicts should be captured as well as any other potential problem areas.

Next, the same process should be used along the line of each of the markings followed by quality overview shots of the entire area. A well-drawn diagram of the area can also be helpful.

The next step is to pothole the utilities. Excavators should document each pothole with data including the depth to the top and bottom of the utility, the size of the utility, material and condition and measurements from fixed objects that are not likely to change. It is always a good idea





IF THE EXCAVATORS KNOW THAT THEY ARE LOOKING FOR A SIX-INCH PLASTIC WATER LINE AND EXPOSE A SIX-INCH CAST IRON LINE, THEY KNOW THAT THEY HAVE NOT FOUND THE TARGET LINE AND SHOULD CONTINUE TO LOOK.”

help to prevent damages. If the excavators know that they are looking for a six-inch plastic water line and expose a six-inch cast iron line, they know that they have not found the target line and should continue to look. At a minimum, it should generate a question leading to a call for assistance.

Utility owners also play a part in the pre-excavation arena. One of the biggest impacts they can have is participating in the design phase of projects and providing much needed information both in meetings and during the survey process. Unfortunately, many companies will not allow their locators to mark lines for surveys. They are missing a golden opportunity to prevent damages when this happens.

Communication is key to damage prevention. Everything discussed in this article promotes open and clear dialog between all parties, whether it is with a meet or through paint put down on the ground. By improving communication, we can have a positive impact on damage prevention. However, when things go wrong, quality pre-excavation activities can support your point of view and save the day. **ESB**

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to capture the potholing process on tape or in photographs. Remember the old adage, if you don't document it, it didn't happen.

If discrepancies arise between what is marked and what you find, never assume. Always follow up with the locator or utility to resolve these issues instead of taking the risk.

With this documentation completed, excavation can begin. Documentation should not stop once excavation starts, however. The documentation process is not complete. It is a good idea to periodically take pictures and/or video while the project proceeds. There is no such thing as too much documentation.

Locator Documentation

For locators, many of the same principles apply. First make sure that you completely understand the marking instructions that you receive. If there are any questions, do not hesitate to call the excavator for clarification. If

you still can't get a good idea of the scope of work, try to arrange a meet onsite. As with the excavator, it is good to walk the site with them and get a clear picture of what they will be doing. Once the instructions are clear, both parties should sign off on it. If something changes on the locator's side, they should make contact and try to find a solution.

After marking the site, the locator should take pictures and video. The locator should strive to follow the proposed path of excavation as well as showing the path of the marks. Extra shots can be captured at potential points of conflict.

Facility Owner Involvement

Utilities should allow the locators to provide key information to the excavators, when known. This includes the size of the facility and the material that should be encountered. With the growing number of abandoned facilities in the ground, this information can

DIGGING DEEP

INTO DEPTH ESTIMATES

BY BOB NIGH SWONGER

THE LIKELIHOOD OF
ERROR INCREASES
WITH THE DEPTH OF
THE LINE BECAUSE
SIGNALS CREATED
ON DEEPER LINES
ARE WEAKER AND
LESS RELIABLE
WHEN DETECTED AT
SURFACE LEVEL.

For several reasons, including signal strength and shape, the electronic depth estimate provided by locate equipment is not guaranteed. A depth estimate provided by the locate technician may give an excavator a false sense of security when crossing over or under a buried line.

The electronic depth reading is not a reading that you would want to bet anyone's life on. The depth readings provided by handheld electromagnetic line locating equipment is an estimation of distance from the bottom of the signal receiver to the center of a locatable signal broadcasting from an underground line. The only absolutely accurate way to know the depth of any buried line is to safely expose the line and see it with your own eyes.

Electronic Depth Estimation and Signal Fields

An electronic depth measurement is a distance calculation from the bottom of the locator's signal receiver to the center of the signal field being detected – NOT a measurement of the depth of cover over a buried pipe. Since the receiver is estimating distance to the center of a perfectly round signal, if you are locating a large diameter pipe the depth calculation is to the center of the pipe. Many equipment manuals claim that in suitable conditions the accuracy of the depth reading provided by the signal receiver should be +/- 5% for lines up to 10 to 15 feet in ideal conditions. The likelihood of error increases with the depth of the line because signals created on deeper lines are weaker and less reliable when detected at surface level.

OTHER AREAS TO AVOID TAKING A DEPTH READING WOULD BE NEAR A TEE IN A PIPE OR SPLICE IN A CABLE OR TRACER WIRE.



Suitable conditions for depth measurement are when the signal transmitter is directly connected to a facility that is buried in a straight line without any adjacent facilities in the ground. The optimum locatable signal would be a strong signal with a perfectly round shape as it radiates or broadcasts out from the underground line, similar to a water ripple created by a golf ball in the middle of a pond of calm water.

When signal wave distortion exists, that signal is not perfectly round and results in the mathematical calculation of distance to line to be incorrect. In the event of signal distortion caused by target signal coupling with a nearby line, the depth reading can be in error up to 50% off the actual depth. That means a line buried 10 feet deep can produce a depth reading ranging from 5 to 15 feet.

Tips for Electronic Depth Estimating

For best results, choose a point along the target line where it runs in a straight line for at least 10 feet in both directions from that point. Avoid taking a depth measurement within 15 feet of the transmitter due to interfering fields being broadcast for the temporary ground stake and wire connection leads.

The most accurate depth estimates are normally obtained from a buried line when the measurement is taken from a signal created by a signal transmitter that is directly connected to the targeted line. The depth assumptions are that the receiver is directly over the top of the line. Another assumption is that the receiver's handle is aligned with the direction of the line or the orientation of the signal field.

Use the guidance indicators and signal strength readout to pinpoint the exact loca-

tion directly over the line. This will be the top dead center of the round signal field. Then establish the exact direction of the line. Some receivers align the handle of the receiver to the direction of the buried line. Set the bottom of the receiver on the ground while maintaining alignment and obtain an electronic depth reading by either the push of a button or full time display. Note the depth at ground level and then raise the receiver 12-18 inches up from the ground. Check the depth reading again and do the math. The reading should equal the sum of the depth at ground level plus the distance you raised the receiver.

There are many areas along a buried line where depth measurements are not favorable, including any point that is within 8-10 feet of an abrupt turn or change of direction in the target line or areas where the line could be at a downward or upward pitch from the surface of the ground. Other areas to avoid taking a depth reading would be near a tee in a pipe or splice in a cable or tracer wire. In these areas, the signal splits in multiple directions and will collide and distort. Finally, any point along the path of a target line where signal may bleed over to another nearby line or metallic object like a fence or heavy equipment, including joint trench scenarios where your targeted line is buried with several other lines. These areas may cause the target signal to become substantially distorted due to signal coupling.

With the countless variables which can cause an electronic depth reading to be in error, it will never be as reliable as safely exposing a buried line prior to digging across, above or beneath a buried line. If the depth of the line is important, the only way to guarantee it... is to see it. Dig Safe! **ESB**

Bob Nighswonger is President of Utility Training Academy (UTA). Visit damagepreventiontraining.com to learn more about damage prevention training for excavators and locators.

Ergonomics is the way you use your body to work and fitting the job or task to you to reduce your risk of injury. The goal of ergonomics is to reduce the risk of soft tissue injuries. These injuries typically develop slowly over time and involve nerves, muscles, tendons, joints and ligaments. Examples of these injuries include low back strain, carpal tunnel syndrome, and tendonitis.

These injuries often start out minor, such as a muscle pull, but become much more serious if you continue to perform the task which originally triggered the injury without getting proper treatment. If not given opportunity to heal, these injuries can become chronic, which means they will stay with you for a long time. There have been cases where injuries have become so serious that it becomes painful to perform simple tasks such as walking or holding a pen or pencil.

time can cause a problem, but activities with more than one hazard can increase physical discomfort even more.

- **REPETITION** involves doing the same task repeatedly that uses the same muscles over and over. Repeating the same motion too often can cause wear and tear on your joints. STIs can develop if you do not rest and allow time for your body to heal. Take control over the motions you make and how often you make them. Reduce repetitive motion hazards by:

ERGONOMICS



Importance of Ergonomics in Excavation Safety

Ergonomics helps to ensure you do not physically overexert yourself in the workplace. Reducing this stress on your body eliminates many injuries associated with overuse of muscles, awkward positions, and repetitive motions.

Soft Tissue Injuries (STIs)

Soft tissue injuries (STIs) may occur from activity at home, during work or recreational activity. These injuries may be the result of a single incident (such as a sudden fall, jerk, or blow to the body), or as a result of repeated overuse (such as shoveling or raking soil, tightening bolts, or machinery operation). The result can be serious damage and pain.

The human body is like a machine with limits that vary from model to model. We do not come with an instruction manual, so we have to depend on the feedback our body gives us for self-maintenance and care. The wisdom we use in applying the feedback received determines how resistant our bodies will be to failure. We have some individual control over most of these issues such as our daily decisions on and off the job which impact both the frequency and seriousness of STIs.

The Risks of STIs and How You Can Prevent Them

There are 5 common ergonomic hazards that may occur as part of work activities. One of these hazards performed over a long

- + Taking stretch breaks. If done properly, stretching increases flexibility which directly translates into reduced risk of injury. A muscle/tendon group with a greater range of motion passively will be less likely to experience tears when used actively.
- + Spreading your repetitive tasks throughout the day.
- + Moving your muscles in opposite directions or different ways to stay balanced.

- **HIGH FORCE** uses high muscle power during activities such as heavy lifting, pushing items or gripping tools. Moving heavy objects is an everyday activity that can cause STIs. The weight of an object can damage the disks in your spine or strain

the muscles in your back and shoulders. This includes lifting, carrying, and placing heavy objects. Gripping heavy objects or applying pressure to a tool with your hands can also cause STIs. Over time, these activities can strain the muscles in your hands and arms as well as the tendons that attach the muscles to bones.

- + Examine alternatives to moving heavy objects. Employ tools such as hand trucks, carts or other mechanical assistance, or get a lifting partner.

work closer to you.

- + Tilt or rotate your work to a better position.
- + Bring items closer within your reach.
- + Change the height of your workstation or display.
- + Take breaks.

- **CONTACT STRESS** occurs when pressure from an object pushes on soft body tissues. Individuals who work with hand tools that dig into the palms of their hands or the sides of their fingers should be aware of the potential for

hands and arms becoming damaged. These precautions help to reduce vibration:

- + Using low vibration tools.
- + Maintaining tools will usually help complete jobs quicker and reduce your risk to vibration exposure.
- + Using anti-vibration gloves or tool wraps.
- + Keeping hands warm to allow good blood flow and prevent tight gripping which can increase risks of vibration.

There are many tasks in our workplace that

OMICS

BY MICHAEL KAY CARTER



- + If you must lift a heavy object, keep the load as close to your center of gravity as possible. Plan the route prior to starting to avoid twisting.

- + Prevent these injuries by increasing your grip strength. Three ways to do this are: keeping your wrists straight, using two hands, and making sure your gloves fit well.

- **AWKWARD POSTURES** involves working with your body held in a poor position for a long time. Awkward positions stress the muscles and joints. STIs can occur if you work in these positions too often or for long periods of time. Simple fixes that can reduce or eliminate the amount of time you need to spend in those positions include:

- + Stand on platforms that bring your

contact stress. Examples include extended use of pliers that are not padded and put pressure in the palm of the hand and use of tools with finger grooves in the sides of handles that press into your fingers. Practical solutions to guard against contact stress related injuries include:

- + Wearing padded gloves.
- + Selecting hand tools that conform to the geometry of the hands.
- + Taking micro-breaks.
- + Initiating daily stretching.

- **HAND-ARM VIBRATION** is a vibration that enters the body from a power tools or equipment. STIs are caused when the vibration is transferred into your arms and hands. Enough vibration exposure can result in the nerves and blood vessels in your

subject our bodies to unhealthy physical stress. Ergonomic practices reduce workplace injuries by helping to identify these dangerous tasks and then redesigning the way they are done. On average, each of us will experience at least one work-related STI during our lives. STIs can become chronic, meaning their symptoms won't go away, and they can result in lost workdays, surgery or even permanent disability. **ESG**

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Understanding the Marks: Locating and Marking Practices

TAKEN FROM CGA BEST PRACTICES 17.0

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.⁴¹

- 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

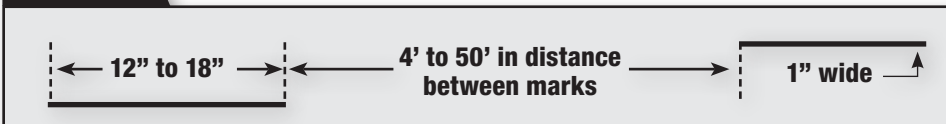


Illustration 2a1

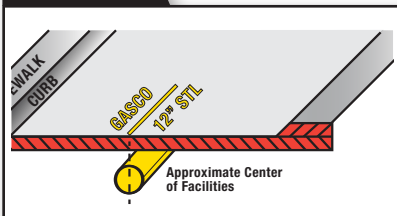


Illustration 2a2

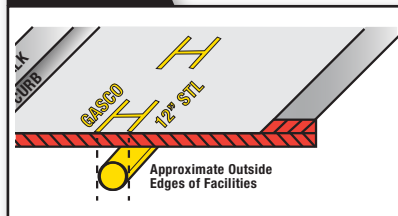


Illustration 2b

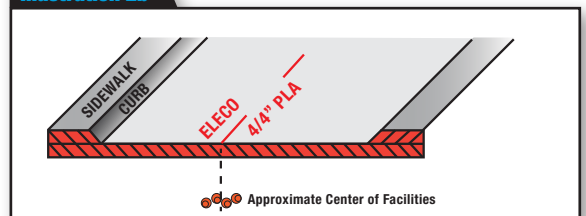


Illustration 2c

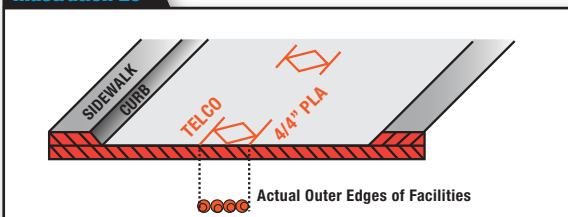
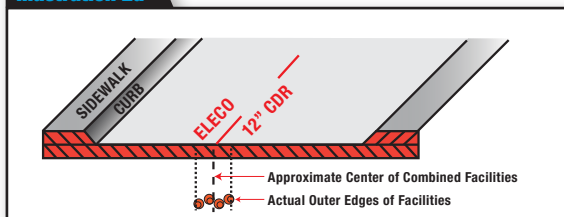


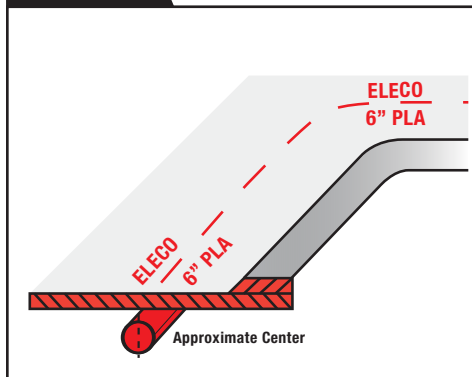
Illustration 2d



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)

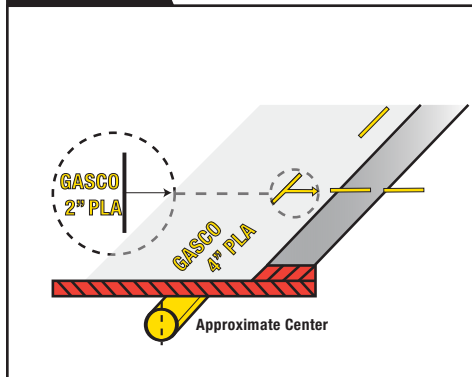
Illustration 3a



Example: lateral connection (Illustration 3b)

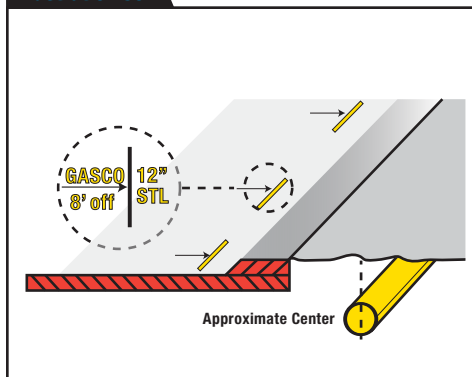
Example: painted offset

Illustration 3b



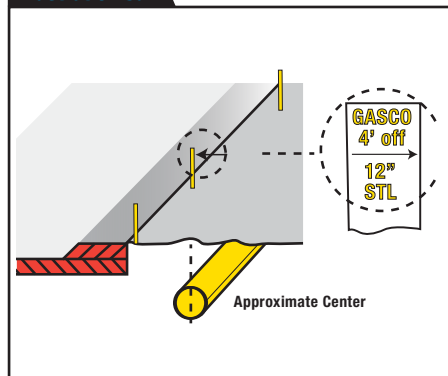
(off) (Illustration 3c)

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" CAB 4" PLA 12" STL

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" PLA/12" STL FO (4" STL)

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 Lines, 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**

The Inaugural Global Locate Masters (GLM) is scheduled to take place during Damage Prevention Week at the 2022 Global Excavation Safety Conference in Phoenix, Arizona March 1-3. The competition is designed to test the top locators in the world in a skills competition unlike any held before. Using UTTO virtual locate simulators, locators have the unprecedented opportunity to showcase their skills in front of one another and an audience of damage prevention peers.

Typically, locators are evaluated by the mistakes they make, making it difficult to find recognition for everything they do right. GLM is the opportunity for these industry professionals to display how their years of experience, critical thinking, and mental agility combine to allow them to

plaque commemorating their achievement along with recognition in dp-PRO, the industry's leading damage prevention publication. The 3rd place winner will receive a \$500 cash award, and the 2nd place winner \$750.

Ultimately a single winner will be crowned. Along with a \$1,000 cash award, the top placing technician will be named the Global Locate Masters 2022 champion and spokesperson. This honor includes interviews for magazine features, publicity quotes in social media to promote excellence in locating, and recognition of this achievement, along with company recognition in all 2021 media coverage associated with GLM. The champion's name is the very first name etched on the Global Locate Masters Cup, a perpetual trophy put on display every year at the Global ESC!

brightest employees compete for the honor of representing their company at GLM. The skills locate technicians use every day in the field can be tested and flexed to the extreme using UTTO's locate simulators.

- Local Qualifying Event: Regional GLM competitions makes a spectacular value-add to any industry function. Locate technicians are given the opportunity to showcase their skills, and other attendees are given the rare chance to see how locating really works.
- UTTO simulators are available for purchase or rental. Contact Jeanne at UTTO for more details. 239.313.9350 / jeanne@utto.com

3. Placement at an International Locate Rodeo

The top 3 placers at an official International Locate Rodeo competition (national or regional) qualify to compete at GLM. Follow



complete difficult locates in an accurate and timely manner. The Master's competition recognizes, rewards, and shines a spotlight on the world's best utility locating professionals.

Competition Format

The competition features UTTO virtual locate simulators, providing a novel opportunity for indoor competition with realistic, variable, and highly customizable locate scenarios. The simulator accurately replicates the unique challenges found in the field and its on-the-fly programmability allows for fair competition with equal standards across competitors. Most exciting, changing locate scenarios allows fellow competitors, conference attendees, and vendors to become spectators.

The Locate Masters will culminate in a grand finale on the final day of the conference which features the highest performing technicians of the competition.

Awards

The top 10 competitors will be awarded a

Qualification

To find and crown the best locate technician in the world, GLM offers several qualification methods.

1. Employer nomination

Employers are encouraged to nominate employees who exemplify excellence in locating. Not all of the world's most skilled and responsible locators have the opportunity compete in regional or international locating competitions. Employers who feel their locate technician(s) represent the best combination of skill, accuracy consistency, and passion for the job are encouraged to nominate them by going to GlobalLocateMasters.com and clicking the Qualification tab.

2. Placement at a regional Global Locate Masters qualifying event

Compete in a scheduled regional GLM qualifying events or organize your own event!

- Internal Companywide Event: Company hosted GLM events offer a special opportunity for employers to let their best and

upcoming International Locate Rodeo events and opportunities on Facebook.

4. Onsite qualification at the 2022 Global Excavation Safety Conference

All interested technicians, conference delegates, and members of the public may compete to qualify onsite at the Global ESC. This option gives those who may not have had the opportunity to compete in a qualifying event to pit their skills against competitors. Onsite qualification take place at the Phoenix Convention Center, home of the Global ESC, Monday, February 28, 2022.

The world's best locate technicians work every day to protect the public and the underground utilities we all rely on, and GLM is where they showcase the immense amount of skill it takes to do the job well. Competitors from around the world, from large companies to small, will be there to compete to call themselves the best. Will you? **ESC**

Visit GlobalLocateMasters.com

BEING A

BY LEVI MILLS



DIGGING PARTNER

We have all heard the phrase, “Safe digging is a shared responsibility,” and most of us are committed to doing our share. Sometimes, however, it can be difficult to know what our share is. Here are a few easy tips for excavators to ensure they are protecting our buried infrastructure, our onsite crews, and the communities where we work.

Make sure locator marks match aboveground indicators

Comparing the marks made by the facility owner’s locator to aboveground indicators on the dig site is one of the easiest and most effective ways to safeguard against utility strikes. While facilities are tucked out of site and out of mind for most citizens, excavators know there are surface indicators all around us. These indicators include, but are not limited to:

- **Commercial Business Sign**
- **Electrical box**
- **Exposed Pipe**
- **Fire Protection System**
- **Manhole Cover**
- **Marking Paint or Flags**
- **Ownership Transfer Point**
- **Parking Lot Lighting**

- **Pedestal**
- **Pipeline Marker**
- **Propane Tank**
- **Regulator**
- **Saw Cut Marking**
- **Splicing Box**
- **Transformer**
- **Trench Plate**
- **Utility Meter**
- **Water Valve**

Checking for aboveground indicators displays a combination of common sense, experience, and discipline. Although seemingly a simple task, the benefits greatly outweigh the amount of time and effort required. Excavators should make it a high priority task once they arrive at a jobsite after the site location(s) has been completed.

White line

White lining is the practice of marking or lining a proposed dig area prior to excavation. The goal of white lining is to clearly communicate the full breadth of the planned excavation covered on a specific One Call ticket so locators can effectively and efficiently mark the area. White lining is used in conjunction with the text

descriptions of the excavation on the locate ticket. The visual of a white lined area greatly reduces the possibility of mistakes. In fact, a 1997 safety study conducted by the National Transportation Safety Board, “Protecting Public Safety through Excavation Damage Prevention”, endorsed white lining as a practice that aids in preventing excavation damages.

Along with the safety benefits of white lining proposed excavation, the practice can also improve the overall efficiency of the locating process. Locators arriving at a work site have a clearer picture of the work site and can avoid marking areas irrelevant to the proposed dig. Christopher Koch, columnist with dp-PRO, wrote about his own frustrations as a locator with failures to white line in a piece, “*As Long as You’re Here,*” featured in the 2020 Special Locate issue.

It is important to note that white lining should be used as an additional form of communication between excavator and locator and is not a replacement for a thorough written description of the dig site submitted on a One Call ticket.

White line laws vary from state to state, but it is a best practice no matter your location. Check with your local state One Call for more information on laws in your area, ex-

niques. Luckily, the excavation industry has a fast-expanding catalogue of training opportunities focused on excavation safety and damage prevention.

By becoming an Excavation Safety Alliance (ESA) member, you join the utility safety industry's first membership community focused on all facets of damage prevention and excavation safety education. ESA launches spring of 2021 and consists of:

ASK THE EXPERT: A series of videos, podcasts, blog posts where industry experts answer specific questions or provide in-

sights on solutions to common problems.

TOWN HALL MEETINGS: Discussions led by a moderator, often with a panel of industry experts that focus on specific topics of importance to the industry. All stakeholder members have access to these town hall forums and members have access to participate and provide insight. Town Halls follow two different formats

- *Town Hall Solution Series* are multipart events which begin with a discussion focused on identifying aspects of a specific issue, followed by forums directed specifically on building potential solutions. The final step is the formation of small groups who volunteer to work on paths forward for suggested solutions for presentation to the industry through ESA and dp-PRO.
- *Town Hall Forums* are open dialog conversations on hot industry issues like industry studies, new laws, etc. Visit ExcavationSafetyAlliance.com for details and dates on upcoming topics.

WORKSHOPS: In-depth explorations on specific topics available both as live virtual workshops and as recorded on-demand viewing. Workshops available spring of 2021 include:

- CAMO's Emergency Response Workshop: CAMO (Coastal and Marine Operators) explores the issues and challenges in preventing spills, releases, and damage to underwater pipelines and utilities which negatively impact the environment and public safety.
- Leading Practices on Cross Bore Safety: Created to provide guidance for minimizing utility conflicts due to cross bore strikes, this course covers a wide range of cross bore safety topics, from evaluation of existing cross cores to regulatory requirements.

TRAINING VIDEOS: In-depth videos which dive into the details of key topics including episodic series on Subsurface Utility Engineering (SUE) and Vacuum Excavation.

NETWORKING: Through scheduled networking events, ESA members bring conversations and content together to create a digital community that moves beyond ideas to take meaningful actions.

VIRTUAL SYMPOSIUMS: A variety of professional and industry speakers gather to offer education with live Q&A, along with group networking, on specific topics or industries. Upcoming symposiums in 2021 include the Global GPR Congress, Electric Symposium, and the Utility Coordination Symposium.

Many educational videos and blog posts from around the world are available free to non-members. Membership brings access to an extensive catalogue of exclusive content. Visit ExcavationSafetyAlliance.com to learn more.

Participate in industry groups

A wide variety of stakeholders are invested in the safety of buried infrastructure, and groups help organize the many players, topics, and issues. Participation in these groups is a fantastic avenue to professional growth and continued learning and ensures others can consider and learn from your unique perspective. A quick search on google or LinkedIn can yield dozens of immediate results on groups designed around your specific area of interest. **ESA**

panded best practices, and white line marking techniques. For example, visit JULIE One Call of Illinois for a guide to pre-marking standards and terms. (illinois1call.com/pre-mark-your-project-excavators)

Click before you dig

Submitting a locate request before excavating is more than a best practice, it is the law. Specific laws regarding the timing of a locate request vary by state but submitting a locate request before excavation is mandatory nationwide. See the One Call and State Law Directory beginning on page 49 for details on the laws in your state. Many notification centers now offer an online alternative to placing a "One Call." Using this online platform enhances your ability to provide accurate, concise details of the proposed excavation site.

Advantages of submitting an online ticket

- Available for submission 24 hours a day, 365 days a year.
- Skip the possibility of waiting on hold.
- Electronic maps often available to specify excavation area.
- No possibility of verbal transcription errors.

Continue your training

Learning and following best practices helps establish a solid foundation for safety, but continual learning is recommended to keep pace with industry advances and new tech-



TRENCHING AND EXCAVATING PROCEDURES AND SAFETY CONSIDERATIONS

BY
ANKIT SEHGAL



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ore than 800 construction workers are involved in accidents each year on the job. Of these accidents, approximately 40 workers are involved in an incident related to excavation or trenching. That is why the Occupational Safety and Health Administration (OSHA) has gone to great lengths to define threats and identify safe practices. Fortunately, a little knowledge goes a long way when it comes to safe excavations and earth removal.

Trenching and Excavating 101: What to Watch Out For

When it comes to trenching and excavating, you must have a thorough understanding of the most significant risks posed by these operations. One of the primary threats associated with trenching and excavating is cave-ins, accounting for most worker injuries and fatalities. Trench collapses lead to dozens of deaths and hundreds of injuries annually. Other potential issues include hazardous atmospheres, falls, falling loads, and incidents involving mobile equipment.

The best guard against these potential hazards is to never enter a construction site without the proper protective gear or a trench that fails to have the right protective systems in place.

Trenching and Excavation Safety Systems

A protection system should always be in place for commercial trenches five feet or deeper. The only exception is an excavated trench comprised of stable rock. Once a trench reaches a depth of twenty feet, its safety system must be designed by a registered engineer, or tabulated data that has been prepared or approved by such an expert. Different types of protective systems exist.

- **SHORING** is installing supports to prevent cave-ins and soil shifting.
- **SLOPING** is cutting back the trench wall at an angle inclined away from the excavation.
- **SHIELDING** relies on trench boxes or other support types to avoid sediment cave-ins.
- **BENCHING** protects employees from cave-ins by removing earth from the excavation sides to form one or more horizontal steps or levels and cannot be used in Type C soils.

How to Select the Best Safety System

The decision-making process for choosing the right safety system can be complicated, involving multiple considerations, including:

- **Depth of cut**
- **Soil classification**
- **Water content of soil**
- **Changes due to weather or climate**
- **Other operations in the vicinity**
- **Surcharge loads (may include materials used in the trench or spoil)**

What to Know about Soil Types

Excavation safety requires a competent person onsite who understands different soil types and can guide you through the process of installing the best safety system for specific soil conditions. OSHA

relies on three tests. At least two of these tests should be implemented any time soil conditions may change.

1. Plasticity
2. Thumb penetration
3. Pocket penetrometer

Soil Types

Granular soils contain coarse particles like gravel or sand. As a result, the dirt does not stick together and therefore requires more extraordinary measures to prevent a cave-in.

Cohesive soils include enough clay or fine particles that individual particles stick together. Cohesive soil is less likely to cave in.

OSHA relies on a measurement known as unconfined compressive strength (the amount of pressure it requires to collapse a specific soil type) to categorize each soil type.

- **STABLE ROCK** is natural solid mineral matter. You can excavate with vertical sides and it remains intact while exposed. Stable rock is the safest soil in which to work because there are no individual particles that could separate or cave in.
- **TYPE A**, the next most stable of the soil types, is highly cohesive and boasts a high unconfined compressive strength (1.5 tons per square foot or more). Type A soils include clay, silty clay, sandy clay, and clay loam.
- **TYPE B** soil is cohesive but has been disturbed or otherwise fissured. It is characterized by particles that refuse to stick together mixed with Type A soil. Type B soil demonstrates medium unconfined compressive strength (0.5 - 1.5 tons per square foot) and includes silt, silt loam, angular gravel, and soil located near sources of vibration or marked by fissures.
- **TYPE C** soil is the least stable. Its granular soil particles do not stick together. It has a low unconfined compressive strength (0.5 tons per square foot or less) and includes sand and gravel as well as soil with clear signs of water seepage.

Consistently monitor for changing conditions as exposure to vibrations or precipitation can lead to changing soil conditions and require different safety systems.

Daily Inspections by a Competent Employee

Inspections must occur before workers enter the excavation area or trench to help eliminate the risk of excavation hazards. OSHA defines a competent person as an individual capable of identifying predictable and existing hazards or working conditions that are considered unsanitary, dangerous, or hazardous to workers. A competent person will:

- **Test and classify soil**
- **Inspect protective systems**
- **Monitor water removal equipment**
- **Design structural ramps**
- **Conduct site inspections**
- **Take speedy action and corrective measures to mitigate potential hazards**

Understanding Access and Egress Points

The designated competent person regularly inspects excavations and trenches four feet or deeper to ensure safe access and egress. Means of entry and escape must lie within 25 feet of employees.

OSHA Trench Safety Rules

Following these OSHA guidelines ensures the safest working conditions for all employees on a job site.

- **Maintain surcharge loads a minimum of two feet away from trench edges**
- **Keep heavy equipment away from trench edges**
- **Know where all underground utilities are located**
- **Test for low oxygen, toxic gases, and hazardous fumes**
- **Inspect trenches at the beginning of each shift**
- **Never work under raised loads**
- **Inspect earthworks after rainstorms and other precipitous weather**
- **Inspect trench after any occurrence impacting conditions**
- **Ensure all personnel wear high visibility clothing when exposed to vehicular traffic**

Preplanning

Whether your construction company has one year of experience or two decades in trenching, backfilling jobs, and shoring, approach each new job with meticulous preparation and care. The root of most on-the-job accidents is a lack of initial planning. Do not wait until work commences to figure out the best safety system

for an excavation or trench as making adjustments to fix sloping and shoring issues will slow your operations and increase your project costs. Putting a band-aid on potential safety issues increases the likelihood of an excavation failure or cave-in down the road.

Safety Factors to Consider Before Bidding

Before preparing a bid, understand the safety issues at the job site. Know what materials and equipment employees need on hand to comply with OSHA safety standards. This safety checklist can help evaluate each job site before drawing up a plan.

- **Proximity and physical condition of nearby structures**
- **Traffic**
- **Soil classification**
- **Ground and surface water**
- **Location of the water table**
- **Underground and overhead utilities**
- **Quantity of protective systems or shoring that may be required**
- **Weather**
- **Fall protection needs**
- **Number of ladders needed**
- **Other equipment needs**

Taking test borings for soil conditions and types, observations, job site studies, consultations with utility companies, and meetings with local officials can all help determine the kind, amount, and cost of safety equipment needed for workers to do their jobs properly, safely, and more cost-effectively.

Promoting Excavation at Your Workplace

Trenching and excavation are among the two most dangerous activities at construction sites. For this reason, you must approach both with great care. OSHA lays out a comprehensive system of regulations to help ensure the safety of workers. From employing a competent person at your job site to understanding soil types and safety system implementation, these precautions translate into a safer workplace. **ESB**

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IN MARCH 2009, a group of companies met with a mission to identify, trend, and explore common industry issues in preventing coastal and marine pipeline facility damage, releases, and spills. That day, the CAMO (Coastal and Marine Operators) pipeline industry group was born.

In 2020, CAMO is a consortium roughly 25 companies strong and growing. CAMO's current focus among other initiatives is to extend the same "On Land" damage prevention emphases and aware-

ness into coastal and marine areas. coastal areas and offshore areas, pipelines coexist with vessel and boat activity of all kinds. With more pipelines being installed every day, compounded with increased dredging and marine construction activity in the same waters, the chance of a marine vessel contacting an underwater pipeline continues to grow.

How to Stay Safe Around Pipelines

Making an 811 notification, even in marine areas, is the foundation for the safety of personnel. Additionally, pipelines need to be respected

no activity or work should occur. Before work begins all parties should be in mutual agreement on the tolerance zones. Although tolerance zones vary among dredging and marine construction companies, 75 feet is generally the no-go working distance.

Obtaining Pipeline Information

Due diligence is necessary when gathering pipeline coordinates, ownership, and contact information. Multiple sources must be checked, and inconsistencies may exist across those sources. In many cases, other types of

HOW TO WORK SAFELY NEAR UNDERWATER PIPELINES AND UTILITIES

BY ED LANDGRAF



ness into coastal and marine areas.

One of CAMO's 2020 initiatives was to develop and implement a first-ever marine pipeline damage prevention and public awareness online training program for mariners and vessel operators. The primary objective of the program is to educate the maritime community about pipeline locations, safety, damage prevention, and how to respond appropriately in the event of an emergency.

Your job involves decisions that may directly or indirectly impact miles of underwater oil, gas, or chemical pipelines. With inland waterways such as rivers, bays, lakes,

for their potential hazardous impacts to human life and the environment when ruptured. Understanding the roles pipeline and marine construction companies play in safety and damage prevention will help create a successful project. Precautions by all parties need to be understood, agreed upon, and in place before the project begins.

Avoidance procedures should be followed for marine construction projects of all sizes. Pipeline companies and marine construction companies generally have in-house tolerance or "no-go" zones where work may be unsafe or have special conditions. Tolerance Zones are areas near the pipelines where

lines may exist in your project area, such as electric, water, fiber optic, phone, and sewer, to which the same general precautions apply. It is beneficial to familiarize yourself with the different pipeline resources available. Each data source has a different layout and provides different information. Question the pipeline companies. It is their responsibility to provide you with the facts. Prior to kicking off a project all parties involved must agree on project plans, crossing agreements, avoidance and safety measures, and work together to stay informed through project duration.

Once your marine construction project scope is known, outline your total project

footprint in your execution plan and voyage plan. Identify all waterways, wetlands, and marine areas that will be traversed by project vessels including dredged material placement areas, heavy equipment transit ways across placement areas, equipment mooring areas, staging areas, off-loading areas, site access areas, anchoring and spud down areas, and any other areas of operational impact.

Safety, Environment, and Emergency Response

Saving lives, protecting the environment,

Note: Natural gas may be odorless. Always have an active gas detector activated during operations.

Actions After a Pipeline Leak

- Shutdown or minimize the use of all possible ignition sources, motors, lights, etc.
- If possible, drift out of the area before starting a motor or ignition source
- Evacuate the vessel, if needed
- Evaluate the situation; record your exact location and time; and move upwind at least ¼ mile or away from the affected

- Wind and water flow direction are helpful
- Location of the nearest boat launch, if known
- Notify the Coast Guard and the National Response Center (NRC) at (800-424-8802)
- Call 911 to notify the local emergency response agencies
- Check your state's laws for other entities you must notify, such as Louisiana State Police Hazardous Materials Hotline (877-925-6595)



and effectively responding to emergencies are the focus. Always consult with the pipeline company to learn if there are any specific safety, environmental, or emergency concerns and capture them in your safety plan. Cover the plan with all project and vessel personnel. Re-evaluate the plan as new hazards emerge. Include the following recommendations in your plans:

How to Identify a Pipeline Leak

The main signs of a pipeline leak are:

- A continuous bubbling, blowing, or hissing sound from the water
- A rainbow sheen or unusual colored water
- Hydrocarbon smell

area. When safe, call 911.

- Prevent and warn other vessels from entering the area
- Boom-off or secure the area, if possible
- If you see a pipeline sign nearby, call the emergency number listed

Emergency Response and Notification

- Do not extinguish a pipeline fire
- Immediately contact the pipeline company 24/7 emergency number in your plan to shut down the line and provide any pipeline information and location data. This will help the pipeline company identify the impacted line.

Safety and Emergency Plans

All project plans should have the following basic pipeline information stored in multiple readily available locations:

- List of all pipelines in the project scope
- List of the products in each pipeline
- This will help evaluate the risk and response level in the event of a release
- Size of the pipeline diameter
- 24/7 emergency contact number **ESG**

If you think a pipeline was struck but no leak occurs, call both the emergency and local contacts. In many states, reporting a strike is required by law.

According to the survey results, **over 70 percent** of respondents think they qualified as a competent person for trench work. But what does a competent person do? And how can you confirm qualification?

BY JOE WISE

HOW TO IMPROVE WORKER SAFETY IN EXCAVATION PROJECTS

The Center for Construction Research and Training (CPWR) conducted a comprehensive Trench Survey (cpwr.com) to provide greater insight into the rise of trench fatalities. Survey responses drawn from construction, and health and safety professionals by CPWR, United Rentals and Speed Shore Manufacturing identified two important findings – 1) There is a need for more pre-planning on projects and 2) often, trench projects do not have a competent person onsite.

The survey's goal was to learn about the factors that contribute to trench incidents and fatalities so organizations could collectively identify the steps teams can take to mitigate these incidents. It is important to note that nearly two-thirds of those represented in the survey were workers attending a United Rentals Competent Person training course.

More than 60 percent of those surveyed were placed into an “industry” group, meaning those individuals perform actual trench group work, including construction workers, foreman, supervisors, contractors and even emergency responders. Most of the remaining participants were in health and safety functions – health and safety professionals, safety trainers and compliance officers.

If we dig into the results, we can pinpoint a few areas that stood out as opportunities.

Choosing the Right Trench Protection

Among those surveyed, 20 percent said



they never see protection, which includes sloping, shielding, benching and shoring; 50 percent said they only see it occasionally.

The OSHA standard for trenching and excavation (29 CFR 1926.650-652, Subpart P) requires protective systems for trenches five feet or deeper unless the excavation occurs in stable rock. Trenches at least 20 feet deep or approved tabulated data prepared for the system require a registered professional engineer.

The three primary protective systems:

Sloping (benching): Cutting back the trench wall at an angle inclined away from the excavation.

Shoring: Installing aluminum hydraulics or other types of supports to prevent cave-ins.

Shielding: Using trench boxes or other supports to prevent cave-ins.

When planning for an excavation project, consider the following to guide the equipment selection process:

1. Ask why you are excavating. This may seem like a simple question, but the answer may uncover some additional insights and considerations. For example, installing a large system like an electrical vault may require a different protective system than a long, linear gas pipe or water main installation.



2. Excavation size: Consider width, depth and length. Deeper excavations may require different equipment like heavy-duty steel trench boxes or hydraulic bracing.

3. Look around. Are there nearby structures, groundwater issues or overhead obstructions? Consider potential hurdles in installation.

4. Classifying soil type is essential. Be sure to consult your competent person.

5. What is the working area? Consider dirt storage, buildings and roads. All factors may help guide the equipment decision.

Protective equipment to improve productivity and worker safety has become significantly better with advancements in both manufactured systems using tabulated data and site-specific engineered solutions. Lighter-duty shields with high-arch clearance, cut-outs and guide frames, and larger-capacity hydraulic bracing, give companies more options to manage the quality, production and safety of their projects.

Designating a Competent Person

And finally, designate and train the competent person. Making sure the competent person is adequately trained is one of the most important steps in trench safety.

Many OSHA standards, including 1926 subpart P for trenching and excavation, require an onsite competent person to perform certain activities. According to the survey results, over 70 percent of respondents think they qualified as a competent person for trench work. But what does a competent person do? And how can you confirm qualification?

As defined by OSHA, a competent person is “one who is capable of identifying existing predictable hazards in the

surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.”

Duties typically include soil classification, trench inspection at the start of each shift or when conditions change and choosing appropriate trench protective systems if required.

More than 40 percent of the survey respondents failed to see a trained, competent person on their jobsite.

If a company designates a competent person for one activity, he or she is not automatically qualified as a competent person for another. A person may have the skills and knowledge for trench and shoring projects but not necessarily be qualified to inspect scaffolding, conduct a fall hazard analysis or inspect personal fall arrest systems. Large jobsites may even require more than one competent person.

Another interesting takeaway from the survey is almost 70 percent of the respondents didn't think that the OSHA regulations in standard 1926 subpart P were confusing. However, of the 30 percent that did find them confusing, the unclear areas were (in order):

- *Trench sloping and benching safety (depth and width requirements)*
- *Protective systems*
- *Competent person's role and responsibilities*
- *Access and Egress*

Although the requirements from 1926 subpart P haven't changed, the products and innovations certainly have. It's not just an awareness of the standards and regulations; it's leveraging the material and insight from the instructor, practical

experience, industry knowledge and solutions – all of which continue to evolve.

Being Dedicated to Training

Safety training is key and now, more than ever, keeping up to date is crucial. There are several different formats and blended learning is on the rise.

A more educated workforce is a safer and more productive workforce. Companies face daily challenges to this goal, and lectures with minimal classroom engagement do not suffice as training. Training organizations with dedicated resources can offer quality safety instruction, together with assistance outside the classroom, including worksite consultation, engineered designs and safety equipment.

Training in excavation safety for competent persons, confined space entry, fall protection, site-specific regulatory compliance and operator certifications are risk management levers that can also improve productivity. And toolbox talks on a regular basis are a good way to reinforce trench safety basics.

Improving Excavation Worksite Safety

The survey uncovered some key findings. Top of the list is the need for more pre-planning, followed closely by the lack of onsite competent person. It also unveiled opportunities to increase continuous training and education on the standards in place and safe best practices.

It is always a good idea to consult with a trench safety professional before beginning any trench or excavation project. **ESG**

Joe Wise is the Regional Customer Training Manager for the Trench Safety business unit of United Rentals. He provides strategic oversight to competent person training programs in confined space, excavation safety and others.

More than **40 percent** of the survey respondents failed to see a trained, competent person on their jobsite.



Pre-Excavation Checklist Before **EVERY** Excavation

IN THE OFFICE

- ☐ Review all drawings, plans, engineering blueprints for existing buried facilities
- ☐ Proposed excavation area has been marked in white paint and/or flags
- ☐ Call 811 at least 2-3 business days before excavation (check your state One Call laws)
- ☐ Locate ticket number is posted at the work location
- ☐ Onsite meeting scheduled with all high profile facilities in locate area (gas/oil pipelines, high-voltage cables, fiber optic)

ONSITE

Complete a pre-excavation walkthrough of the entire jobsite and adjacent areas

Visual Inspection of Jobsite: Permanent markers:

- ☐ Signs or marking posts
 - Pavement markers (stamped nails, pavement decals, A-tags™)
 - Surface markers
- ☐ Other surface signage for landscaped areas
- ☐ Locate marks
- ☐ Consult any maps or field sketches of the location
- ☐ Identify all services to buildings such as:
 - Gas meters
 - Farm taps

- Pipeline valves
- Cable pedestals
- Electric cables
- Water valves
- Telephone closures
- ☐ Look for evidence of trench lines from previous excavation
- ☐ Look for cleared pipeline ROWs
- ☐ Talk with the property owner or general contractor to identify potential private facilities that may not be marked:
 - Lighting
 - Outbuildings
 - Pools/Spas
 - Irrigation
 - Sewer laterals
 - Propane tanks
 - Communications lines

Document of Jobsite:

- ☐ Compare actual jobsite to One Call ticket
 - One Call ticket covers the scope of the work
 - One Call ticket "Work to Begin" date is valid
 - All utilities have responded
 - All facilities are marked within the excavation area
- ☐ Photograph the jobsite
 - Locate marks and flags from 360° at varying distances for perspective
 - Permanent signage and location relative to the dig area:

- Note location, height, and operator of overhead lines
- Note all required safety signage

- ☐ Video and/or sketches where pertinent

BEFORE YOU DIG

- ☐ Review safety information with anyone working the job
- ☐ Confirm with facility owner vacuum or hydro excavation is scheduled for all pipelines impacted
- ☐ Locations for hand digging within the tolerance zone are noted
- ☐ Representatives for all critical facilities are present
- ☐ Emergency equipment available when hazardous atmospheres are potentially present
- ☐ List of all emergency contact numbers for assets in and adjacent to the dig zone is readily available
- ☐ The location and route to the nearest hospital is known by onsite supervisors

This document is provided for informational purposes only and does not constitute professional advice. It is intended to be used as a guide in the development of a checklist specific to your situation and may not be inclusive of all pre-excavation activities required of your situation. Consult your company's appropriate management before implementation. Excavation Safety Guide, its employees and agents accept no liability and disclaim all responsibility for the consequences of acting, or refraining from acting, in reliance of the information contained in this document or for any decision based on it, or for any consequential, special, incidental or punitive damage to any person or entity for any matter relating to the contents of this document.

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

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

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 refinerías 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

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

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 (H₂S) 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. **ESG**



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

PÓSTER DE SEGURIDAD PROVEIDO POR PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

DIRECTRICES PARA REACCIONAR EN EMERGENCIAS

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.

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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 (cigarrillos, 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 ₂ S)	Sour Crude Oil (H ₂ S)
INDICATIONS OF A LEAK									
See - liquid pooling on the ground			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	
See - dirt blowing from a hole in the ground	X	X		X	X		X	X	
See - a sheen on the surface of water		X	X						X
See - an area of frozen ground in the summer	X	X		X	X		X	X	
See - an unusual area of melted snow in the winter	X	X			X		X	X	
See - an area of dead vegetation	X	X	X	X	X	X	X	X	X
See - bubbling in pools of water	X	X		X	X		X	X	
Hear - a loud roaring sound like a jet engine	X	X		X	X		X	X	
Hear - a hissing or whistling noise	X	X		X	X		X	X	
Smell - an odor like rotten eggs or a burnt match	(1)	(1)						X	X
Smell - an odor like petroleum liquids or gasoline		X	X			X			X
Smell - an irritating and pungent odor				X				X	X
HAZARDS OF A RELEASE									
Highly flammable and easily ignited by heat or sparks	X	X	X			X	X	X	X
Will displace oxygen and can cause asphyxiation	X	X		X	X		X	X	
Vapors are heavier than air and will collect in low areas		X	X	X	X	X		X	X
Contact with skin may cause burns, injury or frostbite		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
Runoff may cause pollution			X	X		X			X
Vapors may form an explosive mixture with air	X	X	X			X	X	X	X
Vapors may cause dizziness or asphyxiation without warning	(1)	(1)			X		X		
Is lighter than air - can migrate underground and into enclosed spaces	X						X		
EMERGENCY RESPONSE									
Avoid any action that may create a spark	X	X	X			X	X	X	X
Do NOT start vehicles, switch lights or hang up phones	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
Alert others to evacuate the area and keep people away	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
Call the pipeline operator and report the event	X	X	X	X	X	X	X	X	X
Wait for emergency responders to arrive	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
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

HOW TO DEVELOP

BY GEN HANDLEY

With an unprecedented number of employees now working alone or remotely, it is the employer's responsibility to put a program in place to protect these people who are more vulnerable because of their new employment conditions. This applies to those in the excavation industry who face a multitude of safety hazards including:

- **Flooding or deep pits of water.**
- **Falls into trenches and pits/holes.**
- **Slips, trips, and falls off equipment and structures.**
- **Trench cave-ins or equipment and structure collapses.**
- **Exposure to toxic gases and chemicals (natural gas and sewage lines) as well as suffocation from lack of oxygen.**
- **Electrocution from buried and overhead electrical lines.**
- **Impact from falling or flying objects/materials as well as mobile machinery.**

There are a number of systems and practices that can be put in place to protect the lone workers including shoring, sloping, and temporary protective structures such as trench boxes. But if you want to be truly proactive and put measures in place to prevent accidents before they occur, you need to develop a lone worker safety program. Does it sound daunting and expensive? The good news is that it can be neither with some thorough planning, research, and training.

Assess your risks and hazards

The first step to developing any effective lone worker safety program is to conduct an exhaustive hazard assessment of any safety risks and hazards threatening your workers' well-being. Once you know what the threats are, you can then look at ways of reducing them. Safety hazards and risks are always changing from location to location and from job to job, therefore you need to regularly conduct risk assessments to adapt and therefore maintain a safe work environment.

a lone worker safety program without breaking the bank

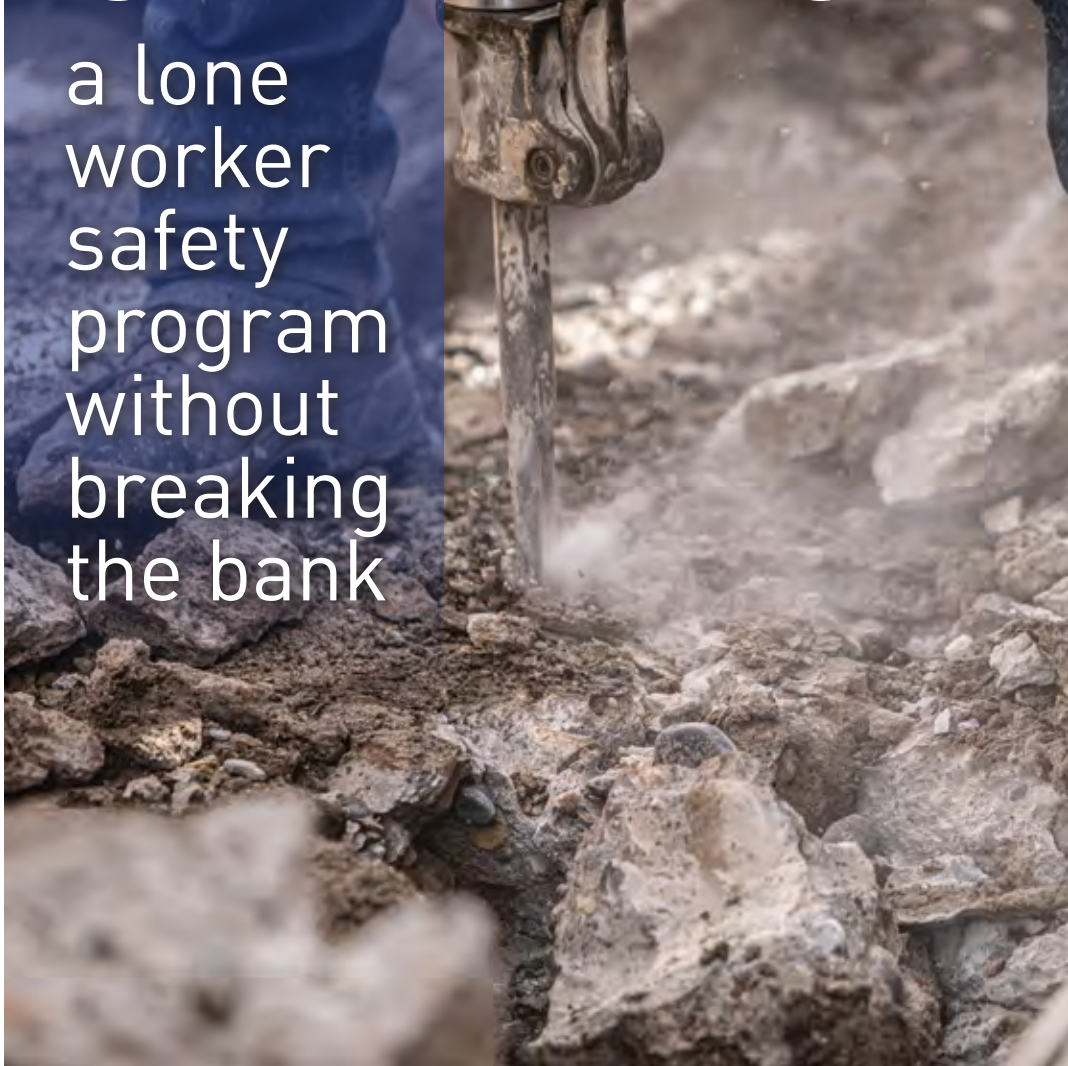
Implement a check-in system

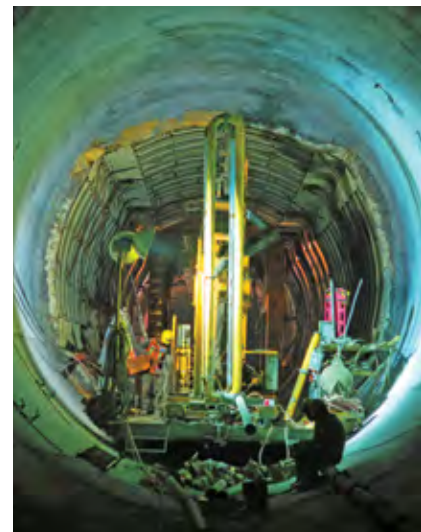
Once you have identified the safety risks, you need to then explore ways of mitigating them as effectively as possible. A powerful tool to have is a check-in system in which the lone worker is required to check in with their organization at predetermined times, confirming and communicating that they are safe. This highly effective system can be manual (effective, but requires more staff time, prone to human error) or can be automated (much more effective and requires minimal staff time, significantly less human error).

Develop safety policies and strategies

Once you identified the potential safety

hazards and developed a check-in system, you then need to create company policies and plans that will reduce the noted risks - these make up the skeleton of your program. While it can be a mundane, somewhat boring task, these policies and programs are a record clearly demonstrating what the employer intends to do about eliminating or at least reducing the safety hazard and increasing the workers' health and well-being. When developing these plans, make sure you consult with all members of the team who are impacted by these risks and hazards - they can provide invaluable feedback and insight, helping the most effective safety policies and strategies.





Engaging education and training

A lone worker safety program is futile if the workers it is benefiting are unaware of it and its policies. That is why once the policies are finalized, workers must be educated, trained and updated regularly about how these policies impact their work. They must understand the rationale of the policies and how they benefit themselves, their team, and the organization. When teaching the team about your safety policies, try to make it as engaging as possible. In addition to official training sessions, you can also educate your team through online workshops or lunch-and-learns, social-distance workshops, creative online courses, casual quizzes, and contests - or all the above.

Constant communication

Even after all of the correspondence when developing your lone worker policies and program, you need to regularly communicate with the team, exploring new safety strategies, modifying existing safety policies or just simply talking about how they're doing. Regular, engaging communication is a major component of a transparent and positive work safety culture where injuries and accidents are less likely to occur. With lone and remote workers, there is also flexibility when it comes to communication. Forbes recommends focusing on the process, not the person, so you "can work together in problem solving mode to pool and confirm best ideas." Because these people are alone, there must be greater effort to maintain constant communication to confirm their safety, like

the check-in system mentioned earlier.

Provide communication options

To accommodate this regular communication, you need have channels in place for that connection to occur. This may sound like an obvious point, but your program must identify which channels will be used for which issues. The reason why this must be noted is because every manager and every organization communicate with their team differently. For example, my organization requests that any safety concerns be sent to an official email address, but any other work-related concerns are communicated to my manager in an online document - it varies from workplace to workplace. Clearly outlining this early helps facilitate your safety program and policies while encouraging staff to communicate more frequently and comfortably.

Plan for an emergency

As part of your communications and a major pillar of a solid lone worker safety program, every organization must have a lone worker emergency communications plan as well. While these plans do not require the amount of planning and documentation needed to develop your policies, they are nonetheless just as important for your safety program. The plan should document any possible communications issues in the case of an emergency with a lone worker, how to eliminate those issues, as well as the team members who need to be contacted in an emergency and the best channels to reach

them through. In an emergency with someone working alone, every second counts so this plan could potentially save a life.

Use the tools available

Especially when lone employers are working off the beaten path without any cellular service, communication and the technology for that communication is a part of your program. There are a number of options available including the ubiquitous smart phone or satellite devices. There are also a growing number of lone worker protection apps that can be used on existing devices like smartphones, eliminating the extra costs of purchasing new, expensive devices. These apps allow lone workers to check in and sometimes have location tracking and fall detection.

It is worth the work

As said earlier, developing a lone worker safety program may seem like a lot of work but it is absolutely worth it. Instead of being reactive when an emergency takes place, you are proactively implementing policies and measure that can prevent the incident from taking place at all, potentially saving the life of a valued team member. While there are a number of moving parts, a solid lone worker safety program is most effective when you have established a positive safety culture where everyone is comfortable, committed to a safe work environment and on board. **ESG**

Gen Handley represents SafetyLine and its Lone Worker program. Learn more at safetylineloneworker.com.

SO, YOU'RE GOING TO BE A WITNESS:

TIPS FOR TESTIFYING EFFECTIVELY AT TRIAL IN A COVID-19 WORLD

BY JAMES J. PROSZEK

You have done your investigation, you have testified at a deposition, mediation has failed, and now you are going to trial. These tips may help succeed at trial, particularly in light of the challenges posed by remote testimony at a video trial or hearing necessitated by current COVID-19 conditions.

Preparation, Not Inspiration, Wins Trials

The side most prepared to tell its story in a simple, straightforward manner often wins at trial. There are a number of aspects to being prepared – know your subject matter, develop a simple theme, make sure you and your attorney are on the same page, avoid overreaching, anticipate where the other side is likely to attack and be thoroughly familiar with the processes and technology required to participate remotely by video conference.

1. Know Your Case

The best way to make a bad impression on the jury is to get on the stand and not know your case or what you have said before. At best, you look like a poor witness. Worse, you could be perceived as a liar.

Make sure you have reviewed, and are familiar with, the key facts and the documents and photos your side will use at trial. Details can be significant. Why is it that you are sure the damage occurred at a specific time? How do you know the facility

that was damaged was, or was not, accurately marked? Where and when was this photo taken? What does it show?

Making a timeline of key events can be helpful. You can match the documents to the key events in the timeline and the points those documents illustrate.

Photos taken with cell phone cameras often contain metadata which include time and date. Comparing this data to information contained in other reports can assist in compiling an accurate timeline and provide a supporting narrative.

Talk with other witnesses. The collective memory of the group can help you remember what happened and help you avoid a conflict with what another witness may say.

Review your prior testimony. Make sure your story at trial does not change from the one you told at your deposition. If it does, have a ready explanation.

2. Develop a Simple Theme for the Case

A critical mistake is making your case too complicated for the jury to understand. Develop a simple theme around the strongest points and repeat that theme throughout the trial.

One of the most effective examples I have

seen is a case where an excavator damaged a line after failing to expose it by hand before attempting to cross it. The excavator claimed the ground was too hard to dig with hand tools. The truth was that it would not have been impossible to do so, just more time-consuming, and expensive. Throughout the trial, however, the excavator's lawyer repeatedly referred the ground as "impenetrable coral rock." Repeating that theme consistently throughout the trial left an impression that was difficult to overcome.

3. Make Sure You and Your Attorney Are on the Same Page

Sit down with your attorney and go over the questions he will ask at trial. Memorizing all the questions and answers is not the goal. However, you want to make sure you give the answer he is expecting. Answering "no" to a question he expected you to answer "yes" to makes you both look unprepared and negatively impacts your, and your case's, credibility with the jury.

Judges and jurors who have come of age in a digital world can become frustrated when technology does not work smoothly. Failure to be technologically prepared poses at least two risks. First, inability to follow the presentation, or breaks needed to correct technological or presentation issues can lead to the fact finder becoming



bored and losing interest. Second, lack of a smooth technological presentation can affect the credibility of the witnesses and the entire case. Make sure both you and your attorney are familiar with, and adept at using, the presentation program that will be used.

4. Don't Overreach

Tell your attorney beforehand if you are unsure about, or lack personal knowledge of, a point she anticipates proving through your testimony. Guessing or speculating about things which are beyond what you know leaves you open to having your credibility called into question on cross examination.

5. Walk a Mile in the Other Side's Shoes

Knowing the weaknesses of your case can be as important as knowing its strengths. View the case from your opponent's perspective. What will the other side try to highlight? What questions would you ask to exploit those weaknesses? Considering those issues before you testify gives you the opportunity to formulate responses rather than being caught by surprise in front of the jury.

How You Say it is as Important as What You Say

Your attorney already knows your case and is on your side. You want to engage the jury when testifying. You do this by talking to, and making eye contact with, the

jury rather than the attorney. With remote testimony, this means looking straight at the camera rather than around the room or fumbling with notes or documents.

Juries and judges also tend to dislike witnesses who are disrespectful of the other party and their lawyer. Answer the other lawyer's questions politely and sincerely rather than arguing or showing hostility or derision.

Finally, a smooth presentation is extremely important. Make sure that you and your attorney have gone over all documents and photos that will be used so you are prepared to coherently present them.

1. Be a teacher

You have worked in your business for years. You know and understand it, and this case. The judge and jurors know nothing about your case and likely little about your business. Your job is to teach them about your business and the facts of this case in a way they can understand.

2. Use pictures and drawings

While it may be a cliché, "a picture is worth a thousand words." It is much easier to show the judge or jury a picture of utility locate marks or a diagram of the "tolerance zone" than it is to explain it with words. Use of presentation

software to add annotations or diagrams to the photographs as the testimony progresses can be an effective tool to illustrate that testimony.

3. Use simple language

The utility and excavating industry is filled with technical terms and acronyms. If the jury does not understand your testimony, it is difficult for them to find in your favor. Consider the best ways to explain your business and the facts of your case in plain language that jurors can understand rather than technical terms and acronyms which, while simple to you, likely mean nothing to the jurors.

CONCLUSION

Making sure you know your case, developing a simple theme, and anticipating how the other side will attack the weaknesses in your case will ensure you are prepared to testify at trial. Speaking directly to the judge or jury, respectfully and in plain language and, if the trial will be done remotely, being able to effectively use video presentation technology, will help you follow through on that preparation, and hopefully win your case. **ESG**






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Common Ground Alliance Excavation Best Practices 17.0














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






 **Project Owner**
 **One Call Center**
 **Facility Owner**
 **Designer**
 **Excavator**
 **Locator**




















5-1:	One Call Facility Locate Request
	<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>
5-2:	White Lining⁶⁷
	<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 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>
5-3:	Locate Reference Number
  	<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>









5-4:	Pre-Excavation Meeting
   	<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>
5-5:	Facility Relocations
  	<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>
5-6:	Separate Locate Requests
 	<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>
5-7:	One Call Access (24/7)
 	<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:	Positive Response
   	<p>Practice Statement: 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>Practice Description: 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.</p> <p>"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.</p> <p>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).</p> <p>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:	Facility Owner/Operator Failure to Respond
  	<p>Practice Statement: 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>Practice Description: 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:	Locate Verification
	<p>Practice Statement: 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>Practice Description: Upon arrival at the excavation site and prior to beginning the excavation, an excavator does the following:</p> <ul style="list-style-type: none"> • Verifies that the dig site matches the One Call request and is timely • Verifies that all facilities have been marked and reviews color codes if in doubt • Verifies all service feeds from buildings and homes • Checks for any visible signs of underground facilities, such as pedestals, risers, meters, and new trench lines • Checks for any facilities that are not members of the One Call Center and contact someone to get them located. <p>Use of a pre-excavation checklist is recommended by insurers and practiced by responsible excavating contractors.</p>
5-11:	Documentation of Marks
	<p>Practice Statement: 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>Practice Description: 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:	Work Site Review with Company Personnel
	<p>Practice Statement: Prior to starting work, the excavator reviews the location of underground facilities with site personnel.</p> <p>Practice Description: 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:	One Call Reference at Site⁵⁹
	<p>Practice Statement: 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>Practice Description: 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:	Contact Names and Numbers
	<p>Practice Statement: 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>Practice Description: 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:	Facility Avoidance
	<p>Practice Statement: 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>Practice Description: Foremost on any construction project is safety. Excavators using caution around underground facilities significantly contribute to safe excavation of existing facilities.</p>




5-16: Federal and State Regulations	<p> Practice Statement: 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>Practice Description: 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>
5-17: Marking Preservation	<p> Practice Statement: 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>Practice Description: 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>
5-18: Excavation Observer	<p> Practice Statement: The excavator has an observer to assist the equipment operator when operating excavation equipment around known underground facilities.</p> <p>Practice Description: 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>
5-19: Excavation Tolerance Zone	<p> Practice Statement: 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>Practice Description: (See Practice Statement 5-20)</p>

5-20: Excavation Within Tolerance Zone	<p> Practice Statement: 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>Practice Description: 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>
5-21: Mismarked Facilities	<p>   Practice Statement: 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>Practice Description: 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>
5-22: Exposed Facility Protection	<p> Practice Statement: Excavators support and protect exposed underground facilities from damage.</p> <p>Practice Description: 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>

<p>5-23: Locate Request Updates</p>  	<p>Practice Statement: 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.³⁶</p> <p>Practice Description: 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.³⁷</p>
<p>5-24: Facility Damage Notification</p>   	<p>Practice Statement: 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.</p> <p>Practice Description: 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.</p>
<p>5-25: Notification of Emergency Personnel</p>  	<p>Practice Statement: 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/operator³. 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 assessment⁴.</p> <p>Practice Description: 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.⁴</p>
<p>5-26: Emergency Excavation</p>   	<p>Practice Statement: 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.</p> <p>Practice Description: 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.</p>
<p>5-27: Backfilling</p> 	<p>Practice Statement: 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.</p> <p>Practice Description: 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.</p>
<p>5-28: As-built Documentation</p>  	<p>Practice Statement: Contractors installing underground facilities notify the facility owner/operator if the actual placement is different from expected placement.</p> <p>Practice Description: 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.</p>
<p>5-29: Trenchless Excavation¹³</p>      	<p>Practice Statement: All stakeholders comply with all best practices and the following general guidelines prior to, during, and after any trenchless excavation (as applicable).</p> <p>Practice Description:</p> <ul style="list-style-type: none"> • 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. • 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. • 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. • 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. • 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.)

5-30:	Emergency Coordination with Adjacent Facilities¹⁶
     	<p>Practice Statement: 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>Practice Description: 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>
5-31:	No Charge for Providing Underground Facility Locations²³
 	<p>Practice Statement: Upon notification by One Call Centers, locations of underground facilities are provided by operators at no cost to excavators.</p> <p>Practice Description: 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

5-32:	Vacuum Excavation³⁹
	<p>Practice Statement: 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>Practice Description: 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"> • has been specifically designed and built for this purpose; • is operated by a worker trained and experienced in its operation; • is operated in accordance with practices that provide appropriate levels of worker and public safety and prevent damage to buried facilities; and • is used in compliance with state/provincial laws and/or local ordinances.
5-33:	Facility Owner Provides a Monitor During Excavation⁶⁴
 	<p>Practice Statement: 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>Practice Description: 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 Services

Formerly known as the Community Assistance and Technical Services (CATS) Program

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**

CHANGES TO THE LAWS IN YOUR STATE

BY JENNIFER REAMS, UNDERGROUND TECHNICAL ADVISOR,
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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

Alabama underwent monumental changes with SB 315 (2019). Below are The Administrative Rules that were generated from the new law and went into effect on 11/14/2020.

Administrative Rule Chapter 910-X-1-.01- Filed 9/21/2020; In Effect 11/14/2020- Established the Alabama Underground Damage Prevention Authority (ALUDPA) and its Executive Committee for the purpose of enforcement, reviewing penalty provisions, and the adequacy of enforcement process.

Administrative Rule Chapter 910-X-2- Filed 9/21/2020; In Effect 11/14/2020- Established the rules, organization, and protocols of the damage prevention authority. The Alabama Underground Damage Prevention Authority is composed of a seventeen subject matter experts from the following stakeholder groups: County Engineers, Cable television, electric, municipal utility operator, natural gas distribution, one call center, professional excavator, professional road builder, Land survey, telecommunications, transmission pipeline, utility facility locating, water utility, waste water, Attorney General office, Alabama Public Service Commission (gas pipeline safety), and Alabama Department of Transportation. Further establishes an Executive Committee made up of a maximum five-member committee who are elected from members of the Damage Prevention Authority. The duties of the Executive Committee include but are not limited to the following: (a) Conduct meetings and reviews of alleged violation complaints (b) Determine whether violations have occurred, (c) Dismiss those complaints in which it determines a violation has not occurred, and (d) Upon finding that a violation has occurred, determine and levy penalties, order training, and otherwise take action.

Administrative Rule Chapter 910-X-3- Filed 9/21/2020; In Effect 11/14/2020- Established the compliant filing process, an appeal process, enforcement rules, and adherence to the Alabama Open Meetings and Open Records Acts. The Alabama Public Service Commission shall serve as administrator of the filing process on behalf of the authority. The PUC shall receive and gather alleged violation documentation and submit to ALUDPA executive committee for review and enforcement recommendations. The PUC will notify parties of outcomes to complaints. Parties to the complaint have thirty days to request an appeal hearing before the ALUDPA. Further, a person aggrieved by the final order of the ALUDPA, within 30 days from the date of the final order, may seek judicial review in the circuit court by filing a notice of appeal.

Administrative Rule Chapter 910-X-4- Filed 9/21/2020; In Effect 11/14/2020- Establishes a penalty structure as follows: (a) For a first violation, the violator shall complete a course of training concerning compliance or pay a civil penalty in an amount not to exceed five hundred dollars per incident, or both, (b) For a second or subsequent

violation within a twelve (12) month period, the violator shall complete a course of training concerning compliance or pay a civil penalty in an amount not to exceed one thousand dollars per incident, or both, (c) For a third or subsequent violation within a twelve (12) month period, the violator shall complete a course of training concerning compliance and pay a civil penalty in an amount not to exceed three thousand dollars per incident, (d) if any violation was the result of gross negligence or willful noncompliance, the violator shall be required to complete a course of training concerning compliance and pay a civil penalty in an amount not to exceed ten thousand dollars per incident. **Special note:** Emergency excavations are exempt from civil penalties except in cases of violations deemed willful or malicious. Further, any person who willfully or maliciously removes or otherwise destroys a marking used by an operator to mark the location of any underground facility, except in the ordinary course of excavation, is guilty of a Class C misdemeanor.

Administrative Rule Chapter 910-X-5- Filed 9/21/2020; In Effect 11/14/2020- Establishes procedures for collected penalties and payment of penalties as follows: (a) Monies collected from assessed penalties will be deposited in the Underground Damage Prevention Fund, (b) Any monies remaining in the Underground Damage Prevention Fund at the end of the fiscal year shall not revert to the General Fund, but shall remain in the Underground Damage Prevention Fund, (c) The expenditures of monies in the Underground Damage Prevention Fund shall be at the discretion of the Authority Board to carry out its duties, (d) Excess funds shall be used to support public awareness programs, training and education of excavators, operators, locators, and other persons to reduce the number and severity of violations.

CALIFORNIA

Assembly Bill 1166 Signed 10/02/2019- This bill has brought extensive changes to the damage prevention laws through a minimum of 2021. We will discuss these changes in terms of actual bill law modifications per year and move into rulemaking outcomes.

Important note from previous legislation to take effect in 2020:

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

CHANGES TO THE LAWS IN YOUR STATE!

shall not initiate an enforcement action pursuant to this subdivision for a violation that occurred prior to July 1, 2020

Important note from previous legislation to take effect in 2021:

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 authorized 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 required the board, on or before January 1, 2021, to adopt emergency regulations, as prescribed, to implement these provisions.

Rulemaking Outcomes as follows:

Funding of California Underground Facilities Safe Excavation Board (Dig Safe Board) Each member of a regional notification center who receives more than 200 locate request transmissions in the previous calendar year shall pay a fee to support the operational expenses of the Dig Safe Board. Failure to pay will result in a 5% late fee.

Valid and Current Contact Information: Each member operator shall provide at least one valid and current contact that includes the name, telephone number, and email address of an individual or business unit that can reach a person authorized to respond to inquiries regarding the determination of the exact location of subsurface installations operated by the member. Further, each excavator will provide up to date contact information of a person with knowledge for that excavation during the period in which the ticket is valid. This information will be provided to the notification center.

Continual Excavation Ticket: Request for a continual excavation ticket shall communicate information about the extent of the area of excavation, the location of subsurface infrastructure within the area of continual excavation, and the type of work described within the continual excavation ticket to all workers, including any subcontractors, authorized by the excavator to perform work within the area of continual excavation. Further, the Notification Center shall send out a reminder no earlier than two months and no later than ten days that the continual excavation ticket is set to expire. Finally, excavator/operator shall conduct an onsite meeting and plan following renewal of a continual excavation ticket near high priority subsurface installations.

Use of Equipment Other Than Hand Tools: An excavator may use equipment other than hand tools within the tolerance zone for the purpose of determining the exact location of the underground utility under defined circumstances. (see <https://digsafe.fire.ca.gov/>. for exact specifications.)

Penalties for Violations: Prior to assessing sanctions; the Dig Safe Board shall consider certain criteria such as history of violations, type of violation, and efforts taken to prevent a violation. Further, prior to determining corrective action or monetary penalty, Dig Safe Board must consider certain evidence such as willingness to comply with corrective action order. (see <https://digsafe.fire.ca.gov/>. for all inclusive considerations.)

Other Notable Additions: (a) Damage notification to notification center within 2 hours of actual knowledge under particular circumstances, (b) Onsite planning meeting requirements and guidelines, (c) Clarity on definitions including but not limited to: "Business day" means a week-day Monday through Friday from 8:00 a.m. to 5:00 p.m. and "Damage" means any damage to a subsurface installation caused by excavation or excavation related work, including breaks, leaks, nicks, dents, strikes, gouges, grooves, cracks, or punctures to a subsurface installation, (d) Define who investigates and incident, what triggers an investigation and

how the information may be gathered., (e) How to report a violation, how to respond to alleged violations, appeals process and protocols, and payment of penalty.

AB754 Passed 10/03/2019- This bill requires as January 1, 2021, that a requirement to notify the appropriate notification center of intent to excavate shall appear within the California Solar Permitting Guidebook. Further, provides a release of liability for damages for a city or a county when approving a permit for the construction of solar energy systems.

SB865 Passed 9/29/2020- This bill introduced immediate changes to the damage prevention law along with future changes. First, current changes are as follows: (a) requires the Dig Safe Board to offer violators the option of completing an educational course in lieu of paying a fine for violations that are neither egregious nor persistent, (b) Requires the excavator to notify the regional notification center within 48 hours of discovering or causing damage, (c) Requires a regional notification center to provide notification records to the board quarterly and provide notifications of damage to the board within 5 business days of receipt at the regional notification center.

On or After January 1, 2022: Requires the board, to be within the Office of Energy Infrastructure Safety within the Natural Resources Agency. The bill would require policy committee review at least once every 3 years.

Beginning 1/01/2023: All new subsurface installations, with limited exemptions, be mapped using a geographic information system and maintained as permanent records of the operator.

COLORADO

Best Practice – Subsurface Utility Engineering (SUE) Approved 4/9/2020- Discusses best practices for SUE; approved by the Underground Damage Prevention Safety Commission

Important notes from previous legislation:

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.

FLORIDA

HB 1095 Passed 6/30/2020 Effective 7/01/2020- Florida introduced several changes to its damage prevention law including but not limited to: (a) enforcement abilities to the State Fire Marshal and their designated agents, (b) Violations for failure to follow safe excavation practices within the tolerance zone, (c) Supervision when using mechanized equipment within tolerance zones, (d) Increased penalties (\$2500.00 plus court costs) for each violation involving underground facilities transporting hazardous materials regulated by the Pipeline and Hazardous Materials Safety Administration, (e) Second degree misdemeanor for removing or damaging permanent line markers used to identify approximate location of underground facilities, (f) Excavator must notify by phone or email High Priority Subsurface Installations of the actual start date and time of excavation, (g) Reports of an "incident", are to be provided to the State fire Marshal. The Fire Marshal or their agents may investigate to establish an incident occurred and if it was caused by a violation. (h) Additional civil penalties for violations that caused incident of up to \$50,000. This civil penalty is decreased to \$ 10,000 if incident is caused by state agencies or political subdivisions. (i) Second degree misdemeanor if excavator or operator willfully fails to respond to a citation.

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

INDIANA

HB 1218 3/30/2020- Any underground facilities installed or replaced after June 30, 2020 on public right of ways or private property shall be locatable using standard above ground locating equipment.

MAINE

HB 1892 3/10/2020- This bill clarifies that liquefied propane gas distribution systems that have underground pipes are defined as underground facilities. Further, highway drain culverts and underdrains are not defined as underground facilities. Finally, penalties are increased from \$500.00 to \$1000.00 for first violations and from \$5000.00 to \$10,000 for further violations within the prior 12 months.

MINNESOTA

One Call Process Change: 11/12/20- New Start Time Beginning December 1, 2020, web-submitted notifications of intent to excavate will be assigned a work start date and time that is either a) requested by the excavator, or b) assigned by the notification center to comply with the legal minimum required notice when measured from the time of acceptance of the notification after any review by the notification center has been completed.

MISSISSIPPI

HB 1334 Passed 6/25/2020- As of January 1, 2021, Utility Operators shall participate in the positive response system and within 2 working days respond through the positive response system to the excavator that facilities have been marked, there are no facilities present in area of excavation or facilities can only be located through excavation. Operators shall be provided reasonable amount of time to locate facilities through excavation not to exceed 4 days from original notice.

OKLAHOMA

SB 1225 Passed 5/19/2020; Effective 11/01/2020- This bill added defined limits of excavation not to exceed five hundred (500) linear feet in incorporated areas or one linear mile in unincorporated areas per notification. Further, it grants public agencies access to the record of underground facilities.

WASHINGTON

SB 6420 Passed 3/25/2020; Effective 6/11/2020- This bill added a provision that locating marks are not required to indicate depth due to topography changes over time. Further, the excavator is to contact 911 should any damage cause an emergency. A couple of notable changes are (a) the 13-member safety committee insurance industry seat is replaced with water-sewer district seat and the review committee shall be a balanced group to include at least one excavator and one facility operator.

WASHINGTON D.C.

CB 230117 Passed 1/22/2021- This bill made several substantial amendments to (which is now known as), “Underground Facilities Protection Amendment Act of 2020” as follows: (a) With limited exemptions, no person shall excavate without first notifying at least 96 hours, but no more than 10 days (excluding Saturdays, Sundays, and legal holidays), (b) If it is determined by a utility operator that a proposed excavation is planned in such proximity to

an underground facility that may be damaged, dislocated, or disturbed, the utility operator shall identify the approximate horizontal location of the underground facility on the ground within 2 feet from the outermost part of the underground facility within 72 hours (excluding Saturdays, Sundays, and legal holidays) by marking, staking, locating, or otherwise providing the location of the utility operator’s underground facility. The method of identifying the location shall conform to standards and requirements, including the use of the color-coding system, established in regulations issued by the Mayor, (c) Mandatory positive response to include mandatory wait time for excavator until that response is received. “No person may begin excavation or demolition until receiving notification from the one-call center that the notices from the utility operators have been provided.”, (d) Mandatory support of underground facility after exposure, (e) Mandatory hand digging to expose underground facility, (f) If a person engaged in or preparing to engage in excavation observes evidence of the presence of an unmarked underground facility in the area of a planned or ongoing excavation or observes a discrepancy between the marked or unmarked underground facilities, the person may not begin or continue the excavation until : Has repeated the notification to the one-call center and has received notification from the one-call center that the notices from the utility operators been provided, (g) In the case of damage to an underground facility, the excavator shall notify the utility operator, 911, and any other agency identified by the Mayor, (h) Civil penalties for violations are increased to \$2,500 for the first violation, \$5,000 for the second violation, and \$10,000 for the third or subsequent violation., (i) Civil fines and penalties may be imposed by the Mayor, (j) The Mayor may establish an advisory committee to advise on the implementation of this act and shall nominate and appoint persons to serve on the advisory committee. This committee must have representation from the following: Utility operator, the Public Service Commission, the one-call center, the excavation industry, and utility locator services. The committee serves solely in an advisory capacity only, (k) Rulemaking authority granted to the Mayor.

It is highly recommended to consult your one call center for detailed changes prior to excavating.


WISCONSIN

Diggers hotline debuts voluntary positive response – 4/23/2020

WYOMING

HB 57 Passed 3/12/2020- This bill introduced new definitions as follows: (a) “Area of risk” means an area not to exceed fifty feet from each side of an underground facility that is located under or near a county road and that: Contains hazardous materials that present an extreme risk to the health and safety of persons; or is buried at a depth of less than twenty-four (24) inches. (b) “Routine county road maintenance” means the regular grading of a county road for the purpose of maintaining the surface condition of the road or a roadside drainage ditch, that does not extend more than four inches below the surface and does not result in alteration of the original grade, width, or flow line. Further, this bill provides a provision that an operator deems they are in an area of high risk may provide that county with a written notice to include specific descriptions. This is important provision, as routine county road maintenance is now exempt unless the work is in an area of risk.
Positive Response to go live 3/1/2021

2020/2021 BILLS INTRODUCED

Nevada SB67 – 12/15/2020
Maryland SB 877- Vetted by Governor 5/7/2020
New York AB 1696 Introduced 1/11/2021
Oklahoma HB 2028 Introduced 2/01/2021
Tennessee SB 271 Introduced 1/21/21
Tennessee HB 54 Introduced 1/13/2021 

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

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**Tennessee HB 54
Introduced 1/13/2021**


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. Please note

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 also 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:** Alabama, Alaska, Arizona, 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:** Arkansas, Iowa, Nebraska, Nevada, South Carolina, Texas, Utah, Washington D.C.
- **Relevant County Court:** Alabama, Alaska, Arkansas, New Mexico
- **Division of Safety:** Idaho, Washington
- **Standalone Damage Prevention Boards/ Committees:** Alabama, California, Colorado, Maryland, Mississippi, North Carolina, Puerto Rico
- **Railroad Commission:** Texas
- **Department of Labor:** Montana
- **Department of Natural Resources:** Louisiana
- **Department of Consumer and Regulatory Affairs/Mayor:** Washington D.C.
- **State Fire Marshal:** California, Florida
- **State One Call:** North Dakota, South Dakota, Wyoming
- **Law Enforcement:** Florida
- **Federal Office of Pipeline Safety:** Alaska, Maine (may defer)

One Call and State Law Directory <div>Informational purposes only. Information and laws are subject to change. Consult your local One Call Center website for updated information. Infrastructure Resources, LLC attempted to verify all information as of publication date, and accepts no responsibility for missing or incorrect information.</div> <div><div>You can reach your local One Call center in the U.S. by dialing 811.</div><div>Know what's below. Call before you dig.</div></div>	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	
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	Y	N	N	Y	Y	Y	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	Y	N	Y	Y	Y	N	N	N	N	N	N	N	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	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	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	Y	N	N	Y	Y	Y	N	Y	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	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	24"	

One Call and State Law Directory

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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																							

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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.



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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	Y	Y	Y	Y	Y	N	N	N	Y	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"	
44-7233																							
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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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

NORTH DAKOTA / North Dakota One Call / 800-795-0555

Website: ndonecall.com
Hours: 24 hours
Advance Notice: 2 Full Business Days
Marks Valid: 21 calendar days
Law Link: legis.nd.gov/cencode/t49c23.pdf?20130530105605

N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	N	Y	Y	N	N	24"
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OHIO

OHI0811 / 800-362-2764
Website: OHI0811.org
Hours: 24 hours, 7 days
Advance Notice: 48 hours but not more than 10 working days
Marks Valid: As long as visible and work begins within 10 days of original ticket
Law Link: oups.org/law

N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	18"
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OKLAHOMA / Okie811 / 800-522-6543

Website: okie811.org
Hours: 24 hours, 7 days
Advance Notice: 48 hours excluding date of notification, weekends and legal holidays
Marks Valid: 10 business days
Law Link: okie811.org/thelaw

N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	N	Y	24"
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OREGON / Oregon Utility Notification Center / 800-332-2344 / Tickets Fax: 503-293-0826

Website: digsafelyoregon.com
Hours: 24 hours, 7 days
Advance Notice: 2 Full Business Days
Marks Valid: Life of project
Law Link: digsafelyoregon.com/faqs/ounc_ors_oar.htm

Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	12"	N	Y	N	N	Y	Y	N	N	24"
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PENNSYLVANIA / Pennsylvania One Call System, Inc. / 800-242-1776

Website: paonecall.org
Hours: 24 hours, 7 days
Advance Notice: 3 to 10 business days (construction), 10-90 days (design), at least 10 days (large projects)
Marks Valid: as long as equipment is on site
Law Link: paonecall.org/palaw

N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	Y	18"
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RHODE ISLAND / Dig Safe System, Inc. / 888-344-7233

Website: digsafesafe.com
Hours: 24 hours, 7 days
Advance Notice: 72 hours (excluding weekends and holidays)
Marks Valid: Must start within 30 days, as long as marks maintained
Law Link: digsafesafe.com/laws_rules.php

N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	Y	N	Y	N	Y	18"
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* 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 or 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.

SOUTH CAROLINA / South Carolina 811 / 888-721-7877

Website: sc811.com
Hours: 7:30 AM - 5:30 PM, M-F
Advance Notice: 3 to 12 full working days notice (10-20 full working days notice subaqueous)
Marks Valid: 15 working days
Law Link: sc811.com/SCStateLaw.aspx

N	Y	Y	Y	Y	Y	Y	N	Y*	Y	Y	Y**	Y***	Y***	N	Y***	N	Y	Y	Y	N	N	24"
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* Damage reporting required. All damage must be reported to the facility operator, or if the operator is unknown, to South Carolina 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

SOUTH DAKOTA / South Dakota 811 Center / 800-781-7474


Website: SD811.com
Hours: 24 hours
Advance Notice: 48 hours (excluding weekends and holidays)
Marks Valid: 21 working days from start date and time on ticket
Law Link: sdonecall.com/law.asp


N	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y*	N	N	N	N	N**	Y	Y	Y	N	Y	18"
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TENNESSEE / Tennessee 811 / 800-351-1111 / Tickets Fax: 615-367-4469

Website: tn811.com • **Hours:** 24 hours
Advance Notice: Not less than 3 working days, not more than 10 working days
Marks Valid: 15 calendar days
Law Link: tn.gov/tpuc/divisions/uudp-underground-utility-damage-prevention.html

Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	Y	N	N	24"
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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: texas811.org Hours: 24 hours Advance Notice: 48 hours (excluding weekends and holidays) Marks Valid: 14 working days Law Links: statutes.capitol.texas.gov/Docs/UT/htm/UT.251.htm	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: bluestakes.org Hours: 7:00 AM - 5:00 PM, M-F Advance Notice: 2 business days, 48 hours notice Marks Valid: 14 calendar day Law Link: le.utah.gov/xcode/Title54/Chapter8A/54-8a.html	N	Y	Y	Y	Y	N	Y	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	N	24"
VERMONT / Dig Safe System, Inc. / 888-344-7233																							
Website: digsafe.com Hours: 24 hours, 7 days Advance Notice: 48 hours(excluding weekends and holidays) Marks Valid: 30 days Law Link: digsafe.com/laws_rules.php	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: va811.com Hours: 24 hours, 7 days Advance Notice: 2 working days(excluding day of call) Marks Valid: 15 working days Law Link: va811.com/lawspolicies/	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: washington811.com Northwest Utility Notification Center (NUNC) Website: callbeforeyoudig.org Inland Empire Utility Coordinating Council (IEUCC) Website: ieucc811.org Hours: 24 hours, 7 days Advance Notice: 48 hours Advance Notice: 48 Hours Marks Valid: 45 days Law Link: washington811.com/wa-dig-law-rcw-19-122/	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: missutility.net Hours: 24 hours, 7 days Advance Notice: 2 business day Marks Valid: 15 business days Law Link: apps.leg.wa.gov/rcw/default.aspx?cite=19.122&full=true	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: wv811.com Hours: 24 hours Advance Notice: 2 days but not more than 10 Marks Valid: 10 days Law Link: wv811.com/one-call-law	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: diggershotline.com 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: docs.legis.wisconsin.gov/statutes/statutes/182/0175	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	N	N	Y	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.  Know what's below. Call before you dig.	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")	
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: Maximum 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) 241-4615	www.adm.com
AE2S Water Solutions	(218) 791-7372	(701) 746-8087	www.AE2SWaterSolutions.com
Aera Energy, LLC	(800) 247-5977	(661) 665-5103	www.aeraenergy.com
Aka Energy Group, LLC	(970) 737-2601	(970) 764-6480	www.akaenergy.com
Alliance Pipeline L.P.	(800) 884-8811	(952) 983-1032	www.alliancepipeline.com
Alliant Energy - IPL	(319) 365-8040	(800) 255-4268	www.alliantenergy.com
Alliant Energy - WPL	(800) 758-1576	(800) 255-4268	www.alliantenergy.com
Amplify Energy Corp.	(307) 328-2348	(307) 392-2363	www.amplifyenergy.com/
Arrow Pipeline, LLC	(866) 234-7473	(701) 675-8602	www.crestwoodlp.com
Atmos Energy Corporation	(866) 322-8667	(888) 286-6700	www.atmosenergy.com
Aux Sable Midstream	(701) 628-9380	(701) 628-9393	www.auxsable.com
Avista Utilities	(800) 227-9187	(800) 227-9187	www.myavista.com
Basin Electric Power Cooperative	(800) 339-5616	(701) 557-5895	www.basinelectric.com
Bayou Midstream	(888) 489-2747	(346) 249-3200	www.bayoumidstream.com
Belle Fourche Pipeline Co	(866) 305-3741	(701) 575-2205	www.truecos.com
BKEP Pipeline, L.L.C.	(855) 999-2537	(918) 237-4000	www.bkep.com
Black Hills Colorado IPP, LLC	(719) 696-3220	(719) 696-3209	www.blackhillsenergy.com
Black Hills Energy	(800) 694-8989	(303) 566-3509	www.blackhillsenergy.com
Black Hills Energy - IA Gas	(800) 694-8989	(888) 890-5554	www.blackhillsenergy.com
Black Hills Power dba Black Hills Energy	(307) 757-3010	(307) 757-3010	www.blackhillspower.com
BOE Pipeline, LLC	(844) 220-9234	(701) 300-1333	www.boemidstream.com
Bridger Pipeline LLC	(866) 305-3741	(701) 575-2205	www.truecos.com
Bridger Swan Ranch, LLC	(307) 634-5305	(307) 634-5305	www.granitepeakindustries.com
Butte Pipe Line Company	(866) 305-3741	(701) 575-2205	www.truecos.com
Caliber Midstream Partners, LP	(866) 535-2522	(303) 628-1410	www.calibermidstream.com
California Resources Central Valley	(661) 763-6911	(661) 763-6363	www.crc.com
California Resources Elk Hills, LLC	(661) 763-6911	(661) 763-6363	www.crc.com
California Resources Ventura Basin	(844) 422-5737	(661) 763-6363	www.crc.com
Calumet Montana Refining, LLC	(406) 761-4100	(406) 454-9887	www.montanarefining.com
Carbon California	(805) 531-3712	(805) 794-8593	www.carbonenergycorp.com
Cascade Natural Gas	(888) 522-1130	(888) 522-1130	www.cngc.com
Cedar Falls Utilities	(319) 268-6999	(319) 268-5280	www.cfu.net
Cenex Pipeline, LLC	(800) 421-4122	(406) 628-5443	www.chsinc.com
CenterPoint Energy - OK	(888) 876-5786	(866) 275-5265	www.centerpointenergy.com/safety
Central Iowa Power Cooperative	(641) 782-5518	(641) 782-2158	www.cipco.net
Central Valley Gas Storage	(855) 303-2847	(530) 439-2607	www.cvgasstorage.com
Centurion Pipeline L.P.	(800) 765-8695	(713) 215-7000	www.centurionpipeline.com
Chevron Pipe Line Company	(800) 762-3404	(801) 975-2324	www.chevron.com
Cheyenne Rail Hub, LLC	(307) 634-5305	(307) 634-5305	www.granitepeakindustries.com
CHS MRI Pipelines	(844) 721-6611	(855) 424-7747	www.chsinc.com
City of Blanding	(435) 678-2916	(435) 678-2791	www.blanding-ut.gov
City of Ellensburg	(509) 925-8534	(509) 962-7124	www.ci.ellensburg.wa.us
City of Fort Morgan	(970) 867-4350	(970) 542-3910	www.cityoffortmorgan.com
City of Lake City, Natural Gas Dept.	(386) 758-5405	(386) 758-5405	www.lcfla.com
City of Sioux Falls	(605) 941-2351	(605) 261-2980	www.siouxfalls.org
City of Walsenburg	(719) 738-1044	(719) 738-1048	www.cityofwalsenburg.com
City of Waukegan	(515) 249-1212	(515) 978-7920	www.waukegan.org
Cobra Oil & Gas Corporation	(517) 563-8381	(989) 345-7903	www.cobraogc.com
Colorado Interstate Gas - MT, UT and Western WY	(877) 712-2288	(800) 276-9927	www.kindermorgan.com
Colorado Interstate Gas - Ruby Pipeline	(877) 712-2288	(800) 276-9927	www.kindermorgan.com
Colorado Interstate Gas - Western CO	(877) 712-2288	(800) 276-9927	www.kindermorgan.com
Colorado Natural Gas	(800) 720-8193	(479) 452-7602	www.coloradonaturalgas.com
Colorado Springs Utilities	(719) 448-4800	(719) 448-4800	www.csu.org
ConocoPhillips - UT	(281) 293-1000	(435) 613-2905	www.conocophillips.com
Continuum Midstream, LLC	(877) 587-0026	(806) 278-8266	
CPN Pipeline Company	(877) 432-5555	(707) 374-1505	www.calpine.com
Crestwood Dakota Pipeline, LLC	(866) 234-7473	(701) 859-5001	www.crestwoodlp.com
Crooks Municipal Utilities	(605) 359-2371	(605) 543-5238	www.cityofcrooks.net
Dakota Access, LLC - ND	(800) 753-5531	(346) 231-3814	www.energytransfer.com
Dakota Access, LLC - SD	(800) 753-5531	(346) 231-3811	www.energytransfer.com
Dakota Gasification Company	(866) 747-3546	(701) 880-1129	www.dakotagas.com/Gas_Pipeline
Dakota Natural Gas LLC	(888) 933-9743	(507) 209-2100	www.dakotatanaturalgas.com
Devon Energy Production Company LP	(800) 214-2154	(307) 857-2228	www.dvn.com
Dick Brown Technical Services	(888) 764-5147	(707) 249-8333	www.dbts.com
Divide Creek Gathering LLC	(844) 663-0191	(281) 664-6839	www.sginterests.com
Dominion Energy Idaho	(800) 767-1689	(801) 324-5000	www.dominionenergy.com
Dominion Energy Questar Pipeline, LLC	(800) 300-2025	(801) 324-5000	www.dominionenergy.com
Dominion Energy Utah	(800) 767-1689	(801) 324-5000	www.dominionenergy.com
Dominion Energy Wyoming	(800) 767-1689	(801) 324-5000	www.dominionenergy.com
E&B Natural Resources - Kern	(661) 392-7575	(661) 387-8500	www.ebresources.com
E&B Natural Resources - LA - HBOC	(310) 286-9114	(661) 387-8500	www.ebresources.com
E&B Natural Resources - LA - Murphy	(800) 926-6370	(661) 387-8500	www.ebresources.com
E&B Natural Resources - LA - Packard	(424) 702-1017	(661) 387-8500	www.ebresources.com
E&B Natural Resources - LA - San Vicente	(424) 702-1018	(661) 387-8500	www.ebresources.com

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

COMPañÍA	EMERGENCIA	NO EMERGENCIA	DIRECCIÓN DE INTERNET
El Paso Natural Gas - CO and NM	(800) 334-8047	(713) 420-5433	www.kindermorgan.com
El Paso Natural Gas - OK	(800) 334-8047	(800) 276-9927	www.kindermorgan.com
Elk Hills Power, LLC	(661) 763-6911	(661) 763-6363	www.crc.com
Enable Bakken Crude Services	(701) 842-6916	(800) 829-9922	www.enablemidstream.com
Enable Gas Gathering	(800) 522-8048	(800) 829-9922	www.enablemidstream.com
Enable Gas Transmission	(800) 474-1954	(800) 829-9922	www.enablemidstream.com
Enable Midstream Partners	(800) 474-1954	(800) 829-9922	www.enablemidstream.com
Enable Oklahoma Intrastate Transmission	(800) 522-8048	(800) 829-9922	www.enablemidstream.com
Enbridge - Express Pipeline	(800) 794-3827	(800) 700-8666	www.enbridge.com
Enbridge Energy	(800) 858-5253	(715) 394-1451	www.enbridgeus.com
Enbridge Pipelines (North Dakota) LLC	(800) 858-5253	(701) 857-0800	www.enbridge.com
Energy Operations Management Inc	(877) 723-3344	(916) 859-4700	
Energy Operations Management Nevada LLC	(877) 723-3344	(916) 859-4700	
Energy West Montana	(800) 570-5688	(406) 791-7500	www.egas.net
Enterprise - Jonah Gas Gathering	(800) 203-1347	(307) 360-6552	www.enterpriseproducts.com
Enterprise - Mid America Pipeline - CO, UT, WY	(888) 883-6308	(970) 263-3015	www.enterpriseproducts.com
Enterprise Products - CO	(800) 546-3482	(713) 381-2802	www.enterpriseproducts.com
Enterprise Products - Piceance Gas Gathering	(888) 883-6308	(888) 806-8152	www.enterpriseproducts.com
EOG Resources - CO and WY	(307) 266-7406	(970) 895-2247	www.eogresources.com
EOG Resources - ND	(866) 994-4775	(701) 628-1635	www.eogresources.com
EOG Resources - OK	(800) 225-8314	(405) 246-3100	www.eogresources.com
Equinor Energy LP	(855) 750-8024	(512) 427-3300	www.equinor.com
ExxonMobil Pipeline Company - MT	(800) 537-5200	(406) 657-5400	www.exxonmobil.com
ExxonMobil Production	(307) 276-6000	(307) 276-6238	www.exxonmobil.com
FDL Operating, LLC - Midwest	(307) 437-9500	(307) 262-9786	www.fdlenergy.com
FDL Operating, LLC - Monell	(307) 212-3486	(307) 705-1210	www.fdlenergy.com
Fort Union Gas Gathering	(307) 682-9710	(307) 670-6022	www.fortuniongg.com
Fountain Valley Power LLC	(303) 594-2655	(303) 922-0630	www.southwestgen.com
Freeport-McMoRan Oil & Gas	(805) 739-9111	(805) 934-8288	www.fcx.com
Front Range Pipeline, LLC	(800) 421-4122	(406) 628-5443	www.chsinc.com
Frontier Field Services	(800) 503-5545	(575) 676-3528	www.durangomidstream.com
Garretson Natural Gas	(605) 594-6723	(605) 594-6723	www.garretsonsd.com
Genesis Alkali LLC	(307) 875-8150	(307) 872-2131	www.alkali.tronox.com
Georgia-Pacific - Camas Paper	(360) 834-8414	(360) 834-3021	www.gp.com
Glass Mountain Pipeline LLC	(888) 991-1628	(432) 770-0179	www.nesmidstream.com
Great Plains Natural Gas Company	(877) 267-4764	(701) 222-7655	www.gpng.com
Grove Municipal Service Authority	(918) 801-5404	(918) 786-6107	www.cityofgrove.com
Harlan Municipal Utilities	(712) 755-5182	(712) 733-0026	www.harlanet.com
Havre Pipeline Company LLC	(406) 357-2233	(406) 357-3643	
Hawaii Electric Light Co.	(808) 969-0413	(808) 969-6999	www.hawaiielectriclight.com
Hawaii Gas	(808) 526-0066	(808) 535-5933	www.hawaiigas.com
Hawaiian Electric Company, Inc	(808) 543-7685	(808) 548-7311	www.hawaiianelectric.com
Hawthorn Oil Transportation Inc. - ND	(888) 814-0188	(701) 629-9930	www.hawthornoiltransportation.com
Hess Corporation	(800) 406-1697	(701) 664-6200	www.hess.com
Hildale - Colorado City Gas Department	(435) 467-1160	(435) 874-1160	
Holly Energy Partners	(877) 748-4464	(575) 748-8950	www.hollyenergy.com
Humboldt Municipal Gas Utility	(888) 320-1490	(605) 661-5268	www.humboldtscd.com
Intermountain Gas Company	(877) 777-7442	(877) 777-7442	www.intgas.com
Island Energy Services	(808) 682-4711	(808) 682-2227	www.islandenergyservices.com
Jackalope Gas Gathering Services, LLC	(866) 234-7473	(817) 339-5570	www.crestwoodlp.com
Jayhawk Pipeline	(888) 542-9575	(855) 424-7747	www.chsinc.com
Kansas Gas Service	(888) 482-4950	(800) 794-4780	www.kansasgasservice.com
Kaw Pipeline	(888) 542-9575	(855) 424-7747	www.chsinc.com
KB Pipeline	(800) 433-0252	(800) 433-0252	www.portlandgeneral.com
Kelton Gas Services, LLC	(800) 460-3601	(806) 826-3230	www.durangomidstream.com
Kern River Gas Transmission Company	(800) 272-4817	(800) 420-7500	www.kernrivergas.com
Kinder Morgan Altamont	(435) 454-3927	(800) 276-9927	www.kindermorgan.com
Kinder Morgan CO2 Company, LP	(877) 390-8640	(970) 882-2464	www.kindermorgan.com
Legacy Reserves Operating LP	(307) 527-2873	(307) 587-7232	www.legacylp.com
Liberty Midstream Solutions	(701) 664-3035	(303) 886-7046	www.libertyresourcesilc.com
Liberty Utilities	(855) 644-8134	(855) 872-3242	www.libertyutilities.com
Lumen Midstream Partners - KS	(316) 542-0395	(316) 542-0395	www.durangomidstream.com
Macpherson Oil Company	(661) 448-5200	(661) 448-5200	www.macphersonenergy.com
Magellan Midstream Partners LP - ND	(800) 720-2417	(701) 282-7134	www.magellanlp.com
Magellan Midstream Partners LP - WY and SD	(800) 720-2417	(918) 574-7000	www.magellanlp.com
Marathon Pipe Line - Northwest Products	(833) 675-1234	(855) 888-8056	www.marathonpipeline.com
Marathon Pipe Line - Salt Lake Short Haul and Core	(833) 675-1234	(855) 888-8056	www.marathonpipeline.com
Matrix Oil Corporation	(805) 586-0674	(805) 798-3592	www.matrixoil.com
Mid American Energy Company	(800) 595-5325	(888) 427-5632	www.midamericanenergy.com
Midstream Energy Partners	(866) 295-2176	(661) 765-4087	
Midwest Energy Inc.	(800) 222-3121	(800) 222-3121	www.mwenergy.com
MIGC	(307) 682-9710	(307) 670-6022	www.migc.com
Montana Dakota Utilities Company	(800) 638-3278	(701) 222-7655	www.montana-dakota.com
Mountain Gas Resources, Inc.	(307) 870-2859	(307) 352-3322	www.westernmidstream.com

• 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
MPLX - Andeavor Field Services LLC	(800) 725-1514	(800) 840-3482	www.marathonpetroleum.com
Naftex Operating Company	(661) 363-8801	(661) 809-4956	
Natural Gas Pipeline Co of America - IA	(866) 775-5791	(800) 276-9927	www.kindermorgan.com
Natural Gas Pipeline Co of America - OK	(800) 733-2490	(800) 276-9927	www.kindermorgan.com
Nemaha Gas Gathering System, LLC	(479) 783-4191	(479) 783-4191	
NEOKC Pipeline, LLC	(405) 239-6001	(405) 239-6001	
Nephi City Gas	(435) 623-0822	(435) 623-0822	www.nephi.utah.gov
Nesson Gathering System LLC	(701) 664-3139	(701) 664-3139	www.xtoenergy.com
Northern California Power Agency	(888) 764-5147	(888) 764-5147	www.ncpa.com
Northern Natural Gas	(888) 367-6671	(888) 689-5175	www.northernnaturalgas.com
NorthWestern Energy - MT	(888) 467-2669	(406) 497-2446	www.northwesternenergy.com
NorthWestern Energy - NE and SD	(800) 245-6977	(406) 497-2446	www.northwesternenergy.com
NuStar Logistics, L.P.	(800) 481-0038	(361) 290-0604	www.nustarenergy.com
NuStar Pipeline Operating Partnership L.P.	(800) 759-0033	(316) 721-7068	www.nustarenergy.com
NW Natural	(503) 226-4211	(503) 226-4211	www.nwnatural.com
Oasis Petroleum	(866) 584-8016	(281) 404-9652	www.oasispetroleum.com
Oklahoma Gas Gathering Llc	(405) 380-2284	(405) 380-2284	
Oklahoma Natural Gas	(800) 458-4251	(800) 664-5463	www.oklahomanaturalgas.com
ONEOK - North System	(888) 844-5658	(918) 732-1451	www.oneok.com
ONEOK Field Services Company	(888) 675-3302	(918) 588-7000	www.oneok.com
ONEOK Gas Transportation	(888) 215-5137	(918) 561-8019	www.oneok.com
ONEOK NGL Pipeline, L.L.C.	(855) 348-7258	(855) 689-1298	www.oneok.com
ONEOK Rockies Midstream	(800) 778-7834	(406) 433-3664	www.oneok.com
ONEOK Rockies Midstream - Wyoming	(866) 575-6465	(307) 687-3103	www.oneok.com
Overland Pass Pipeline Company	(800) 635-7400	(307) 872-2833	www.williams.com/overlandpass/
Pacific Gas and Electric Company	(800) 743-5000	(800) 743-5000	www.pge.com/pipelinesafety
Paradox Midstream	(435) 587-2237	(970) 529-3419	www.paradoxresources.com
Paradox Resources	(866) 774-8385	(435) 686-7600	www.paradoxresources.com
Pecan Pipeline Company - ND	(866) 899-2626	(701) 628-1635	www.pecanpipeline.com
Pembina Cochin Pipeline - IA	(800) 265-6000	(713) 369-9000	www.pembina.com
Pembina Cochin Pipeline - ND	(800) 265-6000	(701) 252-9013	www.pembina.com
Petro - Hunt, LLC	(701) 863-6500	(701) 863-6500	www.petrohunt.com
Phillips Pipe Line Co - WY and MT	(877) 267-2290	(406) 441-4749	www.phillips66.com
Pinedale Natural Gas, Inc.	(307) 367-4427	(970) 928-9208	www.pinedalegas.com
Pioneer Pipe Line Company	(877) 267-2290	(406) 441-4749	www.phillips66.com
Plains Pipeline, L.P.	(800) 708-5071	(713) 993-5098	www.plainsallamerican.com
Platte Pipeline - Enbridge	(800) 794-3827	(800) 700-8666	www.enbridge.com
Platte River Power Authority	(970) 229-1733	(970) 226-4000	www.prpa.org
Prospector Pipeline Company	(877) 723-3344	(916) 859-4700	
Puget Sound Energy	(800) 710-1515	(888) 225-5773	www.pse.com
Red Cedar Gathering Company	(970) 382-0828	(970) 764-6900	www.redcedargathering.com
Redding Electric Utilities	(530) 245-7009	(661) 809-4956	www.reupower.com
Ringwood Gathering Company	(800) 967-8493	(580) 438-2345	www.ringwoodgathering.com
Roaring Fork Midstream, LLC	(877) 375-0488	(720) 923-5593	www.roaringforkmidstream.com
Running Horse Pipeline, LLC	(800) 889-7437	(928) 871-4880	www.nnogc.com
San Diego Gas & Electric	(888) 611-7343	(800) 411-7343	www.sdge.com
San Pedro Bay Pipeline C/O Beta Offshore	(562) 606-5711	(562) 628-1534	www.amplifyenergy.com
Savage Bakken Connector, Inc	(701) 774-9316	(701) 774-9311	www.savageservices.com
Scissortail Energy	(855) 737-9555	(800) 276-9927	www.kindermorgan.com
Seneca Resources Company, LLC	(888) 595-8595	(661) 473-7005	http://www.natfuel.com/seneca
Signature Flight Support	(808) 836-1830	(808) 226-3981	www.signatureflight.com
Silicon Valley Power	(408) 615-6550	(408) 615-5606	www.siliconvalleypower.com
Sinclair Pipeline Company	(800) 321-3994	(307) 328-3643	www.sinclairoil.com/pipelines.html
SoCal Holdings, LLC / LA Basin	(562) 624-3452	(562) 624-3400	www.crc.com
South Dakota Intrastate Pipeline Co.	(800) 852-0949	(605) 224-0949	www.sdipco.com
Southern California Gas Company	(800) 427-2200	(800) 427-2200	www.socalgas.com
Southern Star Central Gas Pipeline	(800) 324-9696	(888) 885-6008	www.southernstar.com
Southwest Gas	(877) 860-6020	(877) 860-6020	www.swgas.com
Spire	(800) 887-4173	(205) 326-2680	www.spireenergy.com
St. Croix Gas	(715) 425-6177	(715) 425-6177	www.stcroixgas.com
Stephens Energy Group, LLC	(479) 783-4191	(479) 783-4191	
Stephens Production Company	(479) 783-4191	(479) 783-4191	
Sterling Energy Investments LLC	(877) 838-9381	(720) 881-7100	www.sterlingenergy.us
Summit Midstream	(888) 643-7929	(970) 858-3425	www.summitmidstream.com
Suncor Energy (U.S.A.) Pipeline Company	(866) 978-6267	(307) 775-8106	www.suncor.com
Superior Pipeline Company	(866) 904-4514	(918) 382-7200	www.superiorpipeline.com
Tallgrass Cheyenne Connector	(877) 436-2253	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Interstate Gas Transmission	(888) 763-3690	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Midstream - Powder River Gathering	(307) 687-9691	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Midstream - Redtail NGL Pipeline	(888) 763-3690	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Midstream - Wind River Gathering	(888) 763-3690	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Pony Express Pipeline	(855) 220-1762	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Powder River Gateway	(855) 220-1762	(303) 763-2950	www.tallgrassenergy.com
Tallgrass Rockies Express Pipeline	(877) 436-2253	(303) 763-2950	www.tallgrassenergy.com

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

COMPañÍA	EMERGENCIA	NO EMERGENCIA	DIRECCIÓN DE INTERNET
Tallgrass Trailblazer Pipeline	(866) 299-3050	(303) 763-2950	www.tallgrassenergy.com
Targa Badlands LLC	(866) 957-3133	(701) 842-3315	www.targaresources.com
TC Energy - Bison Pipeline	(800) 447-8066	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
TC Energy - Gas Transmission Northwest	(800) 447-8066	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
TC Energy - Keystone Pipeline	(866) 920-0007	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
TC Energy - Keystone Pipeline XL	(866) 920-0007	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
TC Energy - Northern Border Pipeline Co	(800) 447-8066	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
TC Energy - Tuscarora Gas Transmission	(800) 447-8066	(855) 458-6715	https://www.tcenergy.com/sustainability/safety/
Texas Kansas Oklahoma Gas (TKO Gas)	(806) 244-4210	(806) 244-4210	www.tkogas.com
THUMS Long Beach Company	(562) 624-3452	(562) 624-3400	www.crc.com
Thunder Basin Pipeline LLC	(877) 478-7588	(850) 324-5453	www.slateenergy.com
Thunder Creek Gas Services, LLC	(877) 619-4680	(307) 687-0614	www.thundercreekgas.com
Tidelands Oil Production Company	(562) 624-3452	(562) 624-3400	www.crc.com
Tidewater Terminal Company	(800) 562-1607	(360) 693-1491	www.tidewater.com
Timberland Gathering & Processing Inc.	(620) 624-3868	(620) 624-3868	www.timberlandgathering.com
Town of Aguilar	(719) 941-4360	(719) 941-4360	www.aguilarco.us
TransColorado Gas Transmission Co.	(800) 944-4817	(800) 276-9927	www.kindermorgan.com/public_awareness
TRP - OK Properties LLC	(405) 535-9402	(405) 360-2784	
Tumbleweed Midstream LLC	(719) 767-8700	(719) 767-8601	www.tumbleweedmidstream.com
UNEV Pipeline LLC	(877) 748-4464	(575) 748-8950	www.hollyenergy.com
United States Gypsum Company	(866) 650-6005	(503) 556-4360	www.usg.com
Urban Oil & Gas	(435) 820-9801	(435) 636-2400	www.urbanoilandgas.com
Utah Associated Municipal Power Systems	(801) 925-4008	(801) 925-4012	www.uamps.com
Utah Gas Corp	(970) 675-4482	(970) 675-4400	www.utahgascorp.com
Vantage Pipeline US LP	(800) 360-4706	(888) 428-3222	www.pembina.com
Vermont Gas Systems	(800) 639-8081	(802) 863-4511	www.vermontgas.com
Viking Gas Transmission Company	(888) 417-6275	(218) 745-5082	www.vgt.nborder.com
Walden Gas	(970) 723-4662	(970) 928-9208	www.pinedalegas.com
Wamsutter Pipeline LLC	(307) 870-2859	(307) 352-3322	www.westernmidstream.com
Watertown Municipal Utilities	(605) 882-6233	(605) 882-6233	www.watertownsd.us
WBI Energy	(888) 859-7291	(406) 359-7316	www.wbienergy.com
Western Midstream - Colorado	(866) 504-8184	(303) 775-8965	www.westernmidstream.com
Western Midstream - Utah	(435) 781-7039	(435) 781-9733	www.westernmidstream.com
Western Midstream - Wyoming	(307) 682-9710	(307) 670-6042	www.westernmidstream.com
Westfield Gas & Electric	(413) 572-0000	(413) 572-0100	www.wgeld.org
White River Hub LLC	(800) 558-1913	(307) 352-7690	www.whiteriverhub.com
Whiting Oil and Gas Corporation - CO	(800) 723-4608	(303) 594-6304	www.whiting.com
Whiting Oil and Gas Corporation - ND	(701) 227-8703	(701) 627-2754	www.whiting.com
Wickland Pipelines LLC	(916) 978-2477	(916) 978-2480	www.wicklandpipelines.com
Williams Midstream - Northwest CO	(800) 635-7400	(970) 285-5512	www.williams.com
Williams Midstream - OK	(855) 427-2875	(800) 945-5467	www.williams.com/safety
Williams Midstream - Wyoming	(800) 635-7400	(307) 872-2839	www.williams.com
Williams Northwest Pipeline - Battle Ground	(800) 972-7733	(360) 687-3156	www.williams.com
Williams Northwest Pipeline - Boise District	(800) 972-7733	(208) 884-4300	www.williams.com
Williams Northwest Pipeline - Kemmerer Dist.	(800) 972-7733	(307) 872-2890	www.williams.com
Williams Northwest Pipeline - Moab District	(800) 972-7733	(435) 686-2214	www.williams.com
Williams Northwest Pipeline - Pasco District	(800) 972-7733	(509) 544-9216	www.williams.com
Williams Northwest Pipeline - Pocatello Dist	(800) 972-7733	(208) 238-4100	www.williams.com
Williams Northwest Pipeline - Redmond District	(800) 972-7733	(425) 836-4950	www.williams.com
Williams Northwest Pipeline - Spokane District	(800) 972-7733	(509) 466-6650	www.williams.com
Williams Northwest Pipeline - Sumas District	(800) 972-7733	(425) 836-4910	www.williams.com
Williams Northwest Pipeline - Vernal District	(800) 972-7733	(435) 781-3200	www.williams.com
Williams Rocky Mountain Midstream	(877) 624-7183	(918) 573-7409	www.williams.com
Woodbine Municipal Natural Gas System	(712) 644-2537	(712) 647-2550	www.woodbineia.com
Wyoming Gas Company	(307) 347-2416	(307) 335-3597	www.wyogas.com
Xcel Energy, NSP - Minnesota	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, NSP - Wisconsin	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, PSCo - Gas Distribution	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, PSCo - Gas Transmission	(800) 698-7811	(800) 895-4999	www.xcelenergy.com
Xcel Energy, SPS	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
XTO Energy - New Mexico	(575) 887-7329	(885) 218-2705	www.xtoenergy.com
XTO Energy - Oklahoma	(918) 423-0366	(580) 653-3200	www.xtoenergy.com
XTO Energy - West TX	(877) 311-1007	(806) 592-2939	www.xtoenergy.com
Xcel Energy, NSP - Minnesota	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, NSP - Wisconsin	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, PSCo - Gas Distribution	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
Xcel Energy, PSCo - Gas Transmission	(800) 698-7811	(800) 895-4999	www.xcelenergy.com
Xcel Energy, SPS	(800) 895-2999	(800) 895-4999	www.xcelenergy.com
XTO Energy - New Mexico	(575) 887-7329	(885) 218-2705	www.xtoenergy.com
XTO Energy - Oklahoma	(918) 423-0366	(580) 653-3200	www.xtoenergy.com
XTO Energy - West TX	(877) 311-1007	(806) 592-2939	www.xtoenergy.com

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Industry Publications

811 Magazines

It is not just about printing the dig safely message. It's about connecting with the right people. Working with One Call systems in each state, we reach the people you're looking to reach.



American Gas Magazine

provides natural gas industry professionals the information they need to enhance effectiveness by publishing leading-edge reports on the industry and on American Gas Association activities that offer value to its members.



Australia HeavyQuip journal

covers the latest industry news for construction markets in Australia. The newsletter provides comprehensive coverage on the biggest machinery topics in construction while offering informative and in-depth features that engage and educate operators and owners.



Broadband Communities

is the leading source of in-depth news, expert insights and practical know-how on the technical, business, financial and legal aspects of outfitting properties and communities with high-speed broadband solutions.



CoatingsPro

Is the high-performance coatings industry's leading magazine for up-to-date information, industry news and cost-effective solutions to 27,000+ readers. The magazine reaches 16 unique market segments of the commercial and industrial coatings industry.



Compact Equipment

focuses on small and versatile construction equipment, used in construction, landscaping, agriculture and private sectors. Editorial content targets equipment considered to be "tool carriers," with the ability to wield an assortment of attachments.



Construction Equipment Guide

is a national publication that provides industry news; articles on construction equipment, projects and legislation; auction coverage; business profiles and events and more. CEG's biweekly newspapers consist of four regional editions including state edition supplements.



dp-PRO

With a different technology and industry spotlight focus in each issue, we keep our finger on the pulse of the industry through relevant and through-provoking articles and features written by industry professionals.



HeavyQuip Magazine

is the digital magazine for heavy-duty equipment and machinery specific to the EMEA market as insiders in construction, heavy-duty equipment, agricultural machinery, attachments, and implements. The online resource for newly released equipment and technologies.



ISE (ICT Solutions & Education)

connects network evolution professionals with innovative solutions and concise education across the rapidly changing ICT landscape. As the lines separating telephone, Internet and television companies continue to blur, ISE is the resource telecom providers trust.



Materials Performance

is the world's largest circulation journal dedicated exclusively to corrosion prevention and control. Materials Performance covers the latest technologies and news on coatings and linings, cathodic protection, materials selection and design, and chemical treatment.



Trenchless Today

is published for trenchless industry professionals. Publications include industry news, member spotlights, Q&As, technical papers and information on upcoming educational events. It also highlights NASTT's Hall of Fame inductees and the annual No-Dig Show.



North American Oil & Gas Pipelines

is the premier publication covering pipeline construction in North America. Editorial content includes the latest news on market developments, efficient methods of pipeline construction and maintenance and managerial strategies that enhance your company's bottom line.



Opflow

presents new and established technologies and ideas that readers can apply to water treatment and distribution, as well as wastewater operations.



South African Heavy Equipment Magazine

is the digital magazine focused on construction, mining, and farming equipment and machinery for South Africa and English-speaking Africa. The magazine is always updated with news enhanced by outstanding photographic, audio, and video content.



The Locator

is an annual publication focused on CAPULC initiatives, industry best practices, new legislation and damage prevention related topics. This magazine is the first publication in Canada geared towards line locating and ground disturbance.



Trenchless Technology

is the worldwide and premier communications vehicle for the promotion and development of the trenchless technology industry. The magazine's expanded editorial calendar provides cutting-edge information on the hottest areas of the underground construction market.



USA HeavyQuip Journal

the digital magazine for heavy-duty equipment and machinery specific to the US OTR machinery market. Find industry news, the latest in new product introductions, and a comprehensive directory of manufacturers.



Utility Contractor

is the official magazine of NUCA, working for the underground utility construction industry with the most current information affecting the industry, including technological advancements, safety issues, important legislative developments and instructional advice and more. **ESB**



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How useful, to you, is the content contained in this edition?

☐ Extremely ☐ Very ☐ Somewhat ☐ Not at all

Additional topics I'd like to see included in the Excavation Safety Guide are:

INFORMATION REQUEST FORM

Please complete the form below to request additional information from Pipeline Companies. Your request will be forwarded to all Pipeline Member Companies operating facilities in your State/County. Please print the information clearly in each field. All fields must be completed to process information requests.

Organization Name:

State & County:

Contact Person:

Contact Email:

Contact Phone:

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After completing this form, **scan or snap a pic and email it to info@pipelineawareness.org**

This form may also be accessed online at: **<https://pipelineawareness.org/request-info>**



PIPELINE ASSOCIATION FOR PUBLIC AWARENESS

16361 Table Mountain Parkway
Golden, Colorado 80403

PIPELINE EDITION

Request **FREE** copies of the **Excavation Safety Guide Pipeline Edition**.
<https://pipelineawarenessorg.wufoo.com/forms/request-additional-materials>

SAFETY VIDEO

The video contains valuable information about Pipeline Safety:

- Damage Prevention
- Products Transported
- Pipeline Locations
- Signs of a Leak
- Hazards of a Release
- Emergency Response
- Much More!



An exceptional video covering the potential dangers and safety precautions related to living and working around buried infrastructure.

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The video is accessible at vimeo.com/114175332,
or at the Pipeline Association's website:
www.pipelineawareness.org