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## BEFORE YOU DIG

What you need to know and what you need to do before you dig.

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## LOCATING AND MARKING

The importance of accuracy in locating and marking buried facilities.

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**EXCAVATION Safety Guide Pipeline Edition**

**ISSUE NUMBER 3**

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

The Excavation Safety Guide Pipeline Edition is published annually by Pipeline Association for Public Awareness 16361 Table Mountain Parkway, Golden, Colorado 80403

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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 the guide, please consult with legal counsel and/or your state One-Call Center.

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**ExcavationSafetyOnline.com is home to CGA Excavation Safety Conference & Expo!**

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Know what’s below. Call before you dig.
### Excavation Safety University Video Series!

The Excavation Safety University Video Series is designed to provide practical information to help viewers become more effective in their jobs. Videos are professionally developed and presented by individuals who have years of “on-the-job” training experience in their areas of expertise.

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- **Basic Locating Theory**: Explains how and why electromagnetic locating works in terms the layman can understand.
- **Basic Locating Skills**: Expands on the information provided in the Basic Locating Theory Video, offering practical tips on how to get the most out of your locating set in field applications.

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PROJECT PLANNING:
Check the Safety Folder for Project Information/Project Plan
- Emergency Contact Information
- Supervisor Contact Information
- Emergency Procedure Guidelines
- Name, number, address and map of nearest Medical Facility
- Check the prints to verify the print was prepared by a licensed professional and the utility information shown conforms to ASCE 38-02 Quality Levels A, B, C and D where appropriate (see sidebar article on next page).
- Make sure a working, multi-function pipe and cable locator is on site.

Review the Project Plan
- Check to see if the One Call Ticket(s) is current (check Ticket Number and a copy must be with site foreman and/or the excavator).
- Check to see if One Call locates have been completed (look at due date).
- Check to see if all listed stakeholders have responded to the One Call locate request and the contact information is available for every stakeholder on the project.
- Make sure you have a detailed field sketch of the survey marks to protect them and document the response to the locate request.
- Check to see if the locate marks have been disturbed, moved or destroyed.
- Check for critical facilities on site including restriction on excavation, encroachment permits and notify the appropriate inspectors, if required (excavation in and around some critical and hazardous facilities require an inspector on site to ensure the integrity of the systems during the excavation process; prior notice is often required on gas, oil, high voltage and some communication systems).
- Check to see if the physical conditions, surface utility structures, risers, pedestals, previous markings and job site work plan match and confirm the marks (if not, or if marks look disturbed, request a remark).
- Check for any privately owned facilities which may not participate in the One Call ticket system but which may exist, i.e, lighting, landscape lights, irrigation, sprinkler systems, power outlets

Pre-Excavation Communication is the Key to Damage Prevention

Although there are many tools available to excavators, the most significant thing any excavator can do to prevent utility damage is to communicate.

1. Communicating with the one-call center.
   Most one-call centers repeat the information back to the caller when a locate request is made because they want to make sure the information they are receiving is correct. As an excavator you are responsible for communicating the correct information to the call center and you are also responsible to make sure the information was received according to your intent.

2. Communicating with line locate personnel.
   Do not make undocumented agreements with the line locators just to shortcut the system because these short cuts will come back to haunt you if a damage occurs.

3. Communicating with your employees and your sub-contractors.
   You may understand the excavation laws implicitly but do your employees and sub-contractors? Make
and septic systems. If any evidence is found, contact the owner, the engineer and wait until the systems have been located and marked.

- Check for any new construction, utility trenches or evidence of new utility installations.
- Check to see if all services and utility laterals have been located, identified and marked. If not, make sure the laterals are marked prior to commencing work, add the information to the site plans and notify the project owner.
- Check the prints and verify all the utilities shown on the plan agree with the mark outs.
- Check for aerial facilities and verify the height clearance needed for all equipment, trucks and vendor material delivery trucks.
- Communicate and explain the prints or drawings and the meaning of the flags. Define the work zone to all personnel working in, around or adjacent to the job site.
- Communicate and explain the Safe Work Practices with respect to the day’s works.
- Communicate any hazards, details and procedures required to maintain the safety of the public, personnel, equipment and the site.
- Communicate the specific details of unacceptable habits and short cuts that may violate the Safety Polices.
- Provide clear instructions on equipment and tool inspections prior to beginning work including communication devices.

- Communicate and define the proper PPE required for each employee based on type of work, discipline and project assignment.
- Review materials and chemicals on site and ensure an MSDS Sheet is available for all materials used during the coarse of the day.
- Look for suggestions, recommendations and identify concerns that any crew member, inspector or on-site personnel may have.
- Require all attendees to sign the Tool Box Talk attendance form.
- Check to ensure all job site personnel know the location of the Safety Manual, the MSDS sheets, the emergency contact information and the location of phones and radios needed in the event of an emergency.
- Take immediate precaution to remedy any deficiencies identified during the Tool Box Talk.

**ASCE 38-02 Quality Levels of Information**

**Quality Level D:** The most basic level of information, based solely on existing records.

**Quality Level C:** This is the most commonly used level of information, supplementing Level D information with a visible ground survey of utility facilities, such as manhole or valve boxes. Subsurface Utility Engineering (SUE) industry experts estimate a 15-30% inaccuracy rate for Level C data.

**Quality Level B:** This is the first level where SUE designating information is used, supplementing and verifying Level C and D data. This level addresses problems caused by inaccurate utility records, abandoned or unrecorded facilities, or lost references.

**Quality Level A:** This is the highest level of accuracy available, where SUE locating information is added to Level B designating information. Level A provides precise three-dimensional horizontal and vertical mapping of underground utilities and related structures.

4. **Communicating after damage occurs.**

   It is important that you communicate all damages or near-misses to the facility owner or one-call center. The information you provide is critical in identifying the root cause of the incident and will help to prevent damages in the future.
In 2006 the Federal Communications Commission designated 811 to be the National three digit Call Before You Dig number for the United States. Acting as an additional number to reach existing One Call Centers, it was meant to be a tool to help fix the problem of damage to the Nation’s utility infrastructure. The Common Ground Alliance, CGA, successfully launched the new number on May 1, 2007.

The first step to safety

“As many of us know; a call in and of itself is not necessarily going to stop a utility damage from occurring,” said Joseph Igel, Vice President, George J. Igel and Company, “but it certainly is a start.” As a professional site work contractor in the Central Ohio area, Igel has spent his entire career heavily involved with underground damage prevention both within his company and in the industry.

Holding the excavator board seat on the Ohio Utilities Protection Service, which is the One Call for the state of Ohio, as well as previously chairing the Greater Columbus Damage Prevention Council, a CGA Regional Partner, Igel is all too familiar with utility damages and the chain reaction that stems from them. “Even when all parties do everything by the book, damages to utilities can still occur,” stated Igel. “Calling 811 certainly minimizes some of our exposure to that risk.”

“Notifying the One Call either by calling 811 or their existing 1-800 number is the first step in the damage prevention process,” stated Igel. “Waiting the required amount of time, locating accurately, respecting the marks and digging with care can’t and won’t take place unless companies make that simple call.” The process Igel outlined was developed several years ago by damage prevention industry stakeholders and became known as the Dig Safely campaign. More information can be found at www.commongroundalliance.com

Notification not made still a leading cause of utility damage

The CGA recently published the fifth annual Damage Information Reporting Tool (DIRT) Report for 2008. The report identifies a trend that supports Igel’s claim. “According to the most recent DIRT report, ‘no notification to the one call center’ was reported as the root cause for 37 percent of the events where root cause was identified,” stated Bob Kipp, President, CGA. “As Mr. Igel emphasizes, the call (to 811) needs to be placed to give the process a chance.”

Igel is also involved with the Ohio Contractors Association and indicates that more stimulus money coupled with fewer contracting companies in business may mean companies expand their geography out of state in the upcoming year. “811 certainly simplifies multi-state contracting with a simple-easy to remember number for beginning the damage prevention process.” Igel indicated that the 811 process is front and center at many of the industry safety meetings he attends.

www.call811.com

“We encourage all CGA stakeholders to visit www.call811.com/campaign-materials often to access the latest educational materials that may assist your company or organization in consistently promoting the damage prevention process,” stated Kipp. The website is updated regularly to support key initiatives such as National Safe Digging Month (April) and 8-11 day (August 11).

“We win as an industry and we lose as an industry,” stated Igel. “There is no competition when it comes to safety; we are all on the same team.”

DIGGING UP MORE...

Other online resources In addition to the CGA and call811 web sites, you’ll find additional information on excavation safety practices at www.ExcavationSafetyOnline.com

You’ll also find a directory of state-by-state One Call Centers in the back of this book.
What is ASCE 38-02?

**ASCE 38-02** is a national engineering standard entitled “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.” It was developed to aid planners, designers, project owners, and constructors in managing their project risks as they pertain to existing underground utilities. It does this by assigning a “utility quality level” (QL) to each utility line segment shown on the design or construction plans.

These QLs inform the user where the utility information came from, and an engineer seals the utility data. By sealing the data, the engineer takes responsibility for assuring that the utility data collection and depiction effort followed the rigorous procedures outlined in the standard. There are four QLs (QLD, QLC, QLB, QLA) for which the location data gets increasingly better (more trustworthy) as you go from QLD through QLA. Project risks are allocated according to the contractual documents, but generally follow the concept as shown in Figure 1.

Utilities can be “found” by many methods

Utilities shown at QLD are from existing utility owner records, verbal recollections, and other sources of information for which no one will stand up and say that they will take responsibility for the accuracy of the location data. Utilities shown at QLC have visible surface structures that can be correlated to the records, such as valve box or fire hydrant. When these structures are surveyed and shown accurately on the plans, the QLD record data can then also be shown more accurately since there are known utility point locations in the field that can be correlated to the records. Utilities shown at QLB have been “found” by using pipe and cable locators, GPR, seismic, or other appropriate utility detection and imaging tools.

Engineers refer to this “found” utility as a “designated” utility because its presence and exact location cannot be guaranteed. This inaccuracy is caused because all such tools are prone to errors due to equipment calibration, other nearby utilities or sources of interference (such as fences, guardrails, ground currents) and the types of ground between the utility and the tool. [Note: This is one of many reasons why “one-call” marks aren’t always accurate or utilities aren’t marked at all.]

The QLB “designations” are surveyed and these surveyed marks are shown on the plans. QLA data results from a utility being surveyed when it is exposed. The exact location, both in line and grade, can be guaranteed at that exposure point. By selecting locations carefully, QLA data greatly enhances the reliability of the other quality levels by providing an exact known point, very similar in concept to the structures used to achieve QLC but with a depth/elevation and visual proof.

If a utility is shown at QLD, the constructor knows that he should be very skeptical of the location of that utility. However, the constructor needs to know one more very important fact that is rarely shown on the plans or in the notes. It can usually only be found by asking the project owner at the pre-bid meeting, and that is whether the engineer sealing the utility data was asked to get utility data better than QLD and was unable to, or whether the engineer was asked to stop their investigation at the minimal QLD stage. If the engineer was asked, but unable to designate the utility, it is highly likely that the utility will also go unmarked during the “One-Call.”

Even a little information can be helpful

If QLs are shown on plans, the excavator can compare the utilities shown on the plans to the utilities marked (or not marked) in the field by One-Call operations and have significantly more information to allow them to make better risk decisions. It also allows a more deliberate estimating process. Unmarked utilities are very dangerous for an excavator, but knowing that it is a distinct possibility that a utility is there regardless of the lack of a mark gives everyone a chance to manage their risks in accordance with their company’s safety procedures.
White lining is endorsed by the Common Ground Alliance (CGA) and is a mandated procedure in some states, yet it is not always practiced when excavators prepare a dig site. In today’s economy, when cost containment is critical, the expense and inconvenience to excavators of pre-marking a dig site sometimes obscures the benefits of this CGA Best Practice. However, there are promising new technologies that are designed to address the common obstacles of excavation pre-marking. These tools deliver cost savings and public safety enhancements to support broader adoption of white lining.

**Today’s Reality: Physical White Lining**

Physical white lining requires an excavator visit to the dig site to pre-mark the area with white paint, or an equivalent means. While this practice is known to reduce damages, it adds costs to an excavation job. Recent proposals in some states requiring excavators to remove locate marks after completing a project further complicate the physical white lining decision.

**The Virginia One-Call Pilot Project: Electronic White Lining**

In 2005, the Pipeline and Hazardous Materials Safety Administration (PHMSA) convened a meeting of underground stakeholders that resulted in the Virginia One-Call Pilot Project. The purpose of the project was to research and deploy new and existing technologies that could facilitate communication amongst excavators, one-call centers, facility owners and locators. The pilot’s first phase focused on the use of Global Positioning System (GPS) coordinates to specify the area of an excavation locate request. Through the use of GPS-enabled communication devices and software developed in partnership with Virginia Utility Protection Service (VUPS), excavators created electronic white lines that were transmitted to the one-call center.

The results of the Virginia project were encouraging. The specificity of electronic white lines reduced the average size of locate areas and resulting notifications. These outcomes can lead to lower costs throughout the one-call ecosystem and improved public safety.

**Virtual WhiteLine™: Enhanced Electronic White Lining**

Virtual WhiteLine is an evolution of the Virginia pilot. Through the addition of high-resolution aerial imagery, this enhanced electronic white lining tool allows stakeholders to view the landscape and define the boundaries of a dig site remotely.

Enhanced electronic white lining works in conjunction with existing one-call systems by providing a link to the application during the internet ticket entry process. When an excavator clicks on the link, an aerial image of the excavation location is generated based on the data contained in the one-call ticket. The excavator then draws a white line on the image to delineate the proposed dig site. The completed Virtual WhiteLine is attached to the locate request ticket and is distributed to utility locators. Once on site, a locate technician is able to access the one-call ticket data as well as the “marked up” image and know precisely where the excavator plans to dig.

Enhanced electronic white lining claims all of the cost and public safety benefits as the pilot in Virginia, but further reduces excavator expenses by minimizing the need to travel to the dig site. Fewer white line trips diminish the carbon footprint of an excavator’s enterprise and improve profitability through more efficient asset utilization. Enhanced electronic white lining is also a resource for excavators to use as public criticism of over-painting intensifies.

New technologies lower the cost of white lining for excavators while simultaneously enhancing public safety. These tools provide attractive alternatives for pre-marking, which can encourage adoption of this damage prevention best practice.
Below is a list of questions frequently asked by participants attending UTA’s underground utility locating and safe excavation training programs. The answers to these questions were taken from the responses given by the instructor and class participants.

Q. Why won’t the locators provide depth measurements of the facility?
Answer: Line markings are estimations of horizontal location of underground pipes and cables. The only 100% accurate method for determining depth is to safely expose, visually confirm the location and then measure from surface to the top and the bottom of the exposed line. There are a number of variables that can cause an electronic depth estimation to error. This is why depth measurements are rarely provided by line locating technicians paint marks.

Q. What types of underground facilities can I reasonably expect to find on my dig site?
Answer: There are an assortment of underground wires, cables, pipes, cables and pipes inside of pipes, manholes/ vaults and other concrete or fiberglass structures and reinforcement casings. You can expect to find these facilities at various depths and in an assortment of sizes, materials and colors buried alone or as part of a bundle or joint trench buried beneath the ground at your dig site.

Q. What is the difference between an easement and a right of way?
Answer: Both can contain high profile facilities, distribution and service facilities buried below. An easement is a non-possessory interest to use real property in possession of another person for a stated purpose. An example is a utility easement. A right of way is a strip of land granted for a transportation facility. An example is a pipeline or long haul fiber optic right that provides transportation of product and communications as well as traffic and road right of ways.

Q. What is a “high profile facility stand-by”?
Answer: A high profile (HP) facility stand-by is required by most utility and pipeline owners with high profile facilities near or within the excavation area. Before sending a crew out to perform excavating activities, an onsite stand-by schedule is arranged between HP inspector and excavation crew. The HP Facility Standby is a provision is some states laws and DOT regulations. These provisions normally require the HP facility owner to contact the excavator to notify and arrange a meeting onsite during excavation. Many HP facility owners perform this task as an added security level for their critical lines.

Q. What is considered an emergency excavation?
Answer: In most states an “Emergency” excavation means that excavation is needed in response to a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services.

Q. What is a positive response requirement?
Answer: Many states have a positive response clause written into their law. For excavators, the positive response clause may require an excavator to account for all utilities owners that were notified by the excavation notification process prior to any excavation activities. For utility owners, this clause may require utility owners to positively respond to every locate request by marking their lines onsite or declaring no conflict exist on site by using paint, a clear flag, documented phone call, fax back or online positive response program offered by the one call notification center.

Q. What should I do if a utility company does not mark their lines or give a positive response to clear the area?
Answer: Call the one call notification center back and notify them of the specific utility that did give a positive response also known as a utility “no show.”

Q. How close can I dig with power equipment?
Answer: Most states require an excavator to hand expose the marked line before using any mechanical equipment within the state specific tolerance zone. A tolerance zone is an area on each side of the utility markings in which you must “tolerate” error of the mark. You can also consider the tolerance zone as the “buffer zone of accuracy”. Some states forbid any mechanical equipment within the tolerance zone.

Q. Do the locators mark all underground lines at the location including private lines?
Answer: In most cases, only public utilities are located up to the meter, demarcation point or property line. The lines buried beyond these points are often considered private lines which are not marked by public utility owners. Normally private lines are located by the excavation crew or by a private locator hired by the crew. In most cases, private utility owners are not notified by the 811 call to the regional utility notification center.

Q. What is considered a reportable damage to an underground facility?
Answer: The majority of states require excavators to report any and all breaks, leaks, nicks, dents, gouges, grooves, or other damage to underground pipes, cables and structures during excavation. Contact the Author Bob Nighswonger is President of Utility Training Academy (www.utasearch.com). You can reach him at 1-888-882-8777 or by e-mailing him at bob@utasearch.com
“No offense, but that looks pretty easy.”

It was a sunny afternoon in the late ’90s when a homeowner made that comment to me while I was locating his electric service. It was true I was having a good day. The sun was shining. My ticket load was reasonable, and in fact locating his electric service was pretty easy.

I was polite about it, but a little offended anyway. I’m not sure if I’d heard the comment before, but that was the first time I remember being irritated by it. I know I’ve heard it since – or at least variations of it. Probably the most popular version comes from excavators who’ve spent time looking for a line that wasn’t there or hit something that wasn’t marked: “How hard can it be?” they ask. “How hard can it be to just do your job right?”

Putting aside the routine frustrations that exist with any job, there are some things about line locating that can make it very tough, if not impossible, to do correctly. Not often, but sometimes.

Limitations of the Technology

To start with, it’s important to understand that for the vast majority of locates performed every year in the United States, the method used (electromagnetic induction) doesn’t actually detect buried utilities. Instead it relies on the presence of a moving magnetic field in place around a conductor – meaning as a rule that it is only effective in finding things that are metallic in nature. Electromagnetic induction will not find polyethylene gas lines or dielectric fiber lines that aren’t accompanied by a conductor. Nor can it be used to find empty ducts or nonmetallic sewer and water lines without the presence of a conductor or sonde (a portable battery-operated transmitter that can be propelled through a pipe or duct).

Another important thing to understand about utility locating is that the moving magnetic field (commonly known as signal) used, while typically quite reliable in determining the location of a line, can be acted upon by both other magnetic fields and other metallic conductors in ways that can dramatically affect the accuracy of a locate. That means areas with a lot of conductors in or on the ground can be problematic – like crowded rights of way.

In addition to the challenges posed by busy utility easements, locators also struggle in the presence of metallic conductors that closely parallel the utility being indicated. Common offenders include railroad tracks, chain link fencing, and rebar. The presence of shallow conductors in the vicinity can also cause trouble when a technician is attempting to locate something buried below them. Grounding grids, cable television service lines, sprinklers, and invisible dog fences all can be sources of frustration. The presence of multiple shallow conductors can make locating accurately in mobile home parks particularly tough.

Other Challenges

There are a number of steps that competent technicians can take to mitigate the negative effects posed by competing conductors and magnetic fields. The training programs in place at all major locating contractors as well as those offered by third party vendors stress techniques designed to provide the most accurate locate available at a given site. However, there are still some things beyond a technician’s control including the age, condition and composition of the utility being indicated as well as the type of soil in which it’s buried. All of which means that the marks you’re working on may well be the result of some pretty intense effort and creative problem solving on the part of the technician and sometimes, a site is simply not suitable for accurate electromagnetic locating.

“No offense, but that looks pretty easy.”

I’ve spent some time thinking about that comment over the years and have come to view it as a compliment. Usually when a job looks easy, it has a lot to do with the skill of the person performing it. These days I find myself admiring the multitude of people I come across every day who make their jobs look easy. It’s a pleasure to watch them work.
Guidelines for Operator’s Facility Field Delineation

Operator markings of facilities include; the appropriate color for their facility type; their company identifier (name, initials, or abbreviation) when other companies are using the same color, the number and width of their facilities and 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 to be approximately 12” to 18” in length and 1” inch in width and separated by approximately 4’ to 50’ in distance as an example. When marking facilities the operator is to consider the type of facility being located, the terrain of the land, the type of excavation being done and the method to adequately mark its facilities for the excavator.

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

   a. Single Facility Marking: Used to mark a single facility, marks are placed over the approximate center of the facility. This example indicates an operator’s 12” facility. When a facility can be located or toned separately from other facilities of the same type it is marked as a single facility.

   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. This example indicates 4 plastic facilities that are 4” in diameter (4/4” PLA).

   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. An example would be 4 plastic conduits that are 4” in diameter (4/4” PLA), and the marks are 16” apart indicating the actual left and right edges of the facilities.

   d. Corridor Marking: Used to mark multiple facilities of the same type (e.g. electric), in the same trench where the total number of facilities is not readily known (operator has no record on file for the number facilities) and that are bundled or intertwined. 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. This example indicates a 12” corridor (12” CDR).

3. Changes in direction and lateral connections are to be 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.
Understanding the Marks: Locating & Marking Practices

Continued from Page 10

4. An operator’s identifier (name, abbreviation or initials) is to be placed at the beginning and at the end of the proposed work. In addition to the previous, subsequent operators using the same color will mark their company identifier at all points where their facility crosses another operator’s facility using the same color. The maximum separation of identifiers is to be reduced to a length that can be reasonably seen by the excavator when the terrain at the excavation site warrants it.

CTYSAC   CITIZENS   VERIZON

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

CCWD   RSVTEL   DOW
4” PLA  9 PLA  12” STL

6. Facilities installed in a casing should be identified as such. Two examples are: 6” plastic in 12” steel = 6”PLA/12”STL and fiber optic in 4” steel = FO(4”STL).

ACWD   AT&T
6”PLA/12”STL FO(4”STL)

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

8. Termination points or dead ends are to be indicated as such.

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. AT&T) would mark the area “NO” followed by the appropriate company identifier in the matching APWA color code for that facility (e.g. “NO AT&T”)
Operators of multiple facilities would 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 that there is “No Conflict” (e.g. “NO PG&E/G/D”). The example illustrates that PG&E has no gas distribution facilities at this excavation site. The abbreviation for; gas transmission facilities is “/G/T”, electric distribution is “/E/D” and electric transmission is “E/T” these should be used when appropriate.

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 would indicate on the flag, which facilities were in “No Conflict” with the excavation as in the previous example.

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

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 email 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 providing 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.
There are many types of warning signs that an excavator will see at a typical job site to indicate the existence of buried utilities. The most common form of markers are above ground permanent markers or temporary markers such as flags or paint, but there are also underground warning signs that an excavator must be aware of. The world of utility marking devices installed underground have been around for years, but their awareness and the variety of options has been growing rapidly.

**Additional Warning Signs**

When an excavator arrives at a job site after contacting the local One Call Center to get the job site located, the first thing he/she should do is look for signs of underground utilities. Typically, these signs are obvious, such as marking flags and paint, pedestals, fire hydrants and other above ground indicators. Once the above ground buried utilities are noted and verified the excavator should feel reasonably sure that it is safe to dig.

**BUT, WHAT IF – things just aren’t what they appear to be.** As you start the excavation process, could there be other visual warning signs you may come across? YES! There is a variety, such as: polyethylene underground marking tape (detectable or non-detectable), polypropylene warning mesh with an integrated stainless steel tracer wire (detectable), aluminum foil-backed laminated polypropylene warning tape (detectable), and color bedding material to surround the underground utility. This is not an all inclusive list, but is meant to give you an idea of what you could see when excavating.

**Proceeding Safely After Visual Detection**

If you see any visual signs of a buried utility while you are excavating, what should you do? Stop immediately, and hand dig until the utility is exposed. Continue the excavation work only after you are sure all of the utilities have been exposed. Should you need to contact the owner of the utility, many times, warning tape will have the owner of the utility printed on the tape.

In 2008 on Friday, March 21, there was a trench being dug behind the Rio Hotel & Casino in Las Vegas. This was for a demonstration the following week for a conference & expo. This area had been located and the facilities department at the Rio checked all their prints, to verify there was nothing in the area of the excavation. The asphalt was cut and the back-hoe operator proceeded to dig the trench. After removing the asphalt and after a few scoops of soil, he noticed red tape. He stopped and called for instructions as to what he should do. He was instructed to hand dig and see if he could uncover what utility was below. He came upon three lines, but had no idea what they were.

After calling a locator and the Rio facility department, they were able to determine what the utilities were. Two of the lines were to parking lot lights and the third was a satellite feed for the sports-book from the Rio to Harrah’s Casino. This was the day before the 2008 NCAA Basketball Division 1 Championship Second Round was to start – 16 games to follow over the next two days. Undoubtedly, this would have caused serious problems.

The event related here is a true story, and I’m sure there are others that could be told which are similar. In this instance the visual signs of a buried utility were not obvious until the excavation work had begun. Warning tape and an observant back-hoe operator both did their job in this instance and prevented a potential costly disaster.
I’ve been digging longer than most people have been alive. I was laying sewer lines before we had push joints, before we had line and grade lasers, before we had hydraulic excavators, before we had trench boxes, and before we had One Call Centers. Everything has changed, and everything has stayed the same. We still dig ditches and lay pipe, but the process is different.

**Safety in the sixties**

About 1961 or ’62, I was boring holes for R/W markers on a highway improvement project. At about two feet down, the auger pulled out a mass of wires – 800 pair, I think. It was a Bell Telephone cable, as I recall, and, of course, that was before one call and CGA and all the other entities that have been formed to keep such things from happening. Bell came to the site and repaired the damage. My best recollection is that it took several days.

In another incident I cut an underground electric service with a trencher – big bang, lots of smoke, and scared silly. The power company made the repair, and that was that. During the 60’s and 70’s, my company – and many times it was me – probably cut hundreds of gas lines, phone lines and electric lines. We were lucky to never have anyone hurt due to a cut. And we were only vaguely aware of the safety issues. That’s how it was back then. An excavator cut a facility, and the owner/operator repaired it. End of story.

**One Calls emerge in the seventies**

During the late 70’s, things began to change. One Calls were being formed, and underground damage prevention laws were being passed. I’ve never felt that the damage prevention laws were ever about damage prevention or about safety. I have always viewed them as a liability issue. Suddenly, with the one call laws in force, we now have someone that can be billed for the damage, someone to pay for the repair, someone to point the finger at. Damage was not a big issue when there was someone to pay for the repair. Safety was not a big issue when there was someone else to blame.

**Pulling it together in the nineties**

Fast forward to the 90’s. In 1994, the USDOT called together a diverse group of stakeholders and held the Excavation Damage Prevention Workshop. I took part in that workshop. Our report was published in September and was soon just a memory. It was a good report and contained a lot of the Best Practices later included in the Best Practices Study, but nobody seemed to know just what to do with it. The really good thing was that finally safety and shared responsibility were becoming part of the damage prevention concept.

In June of ’98, TEA 21 was signed into law, and that act gave legislative authority for a new study. Common Ground, Study of One-Call Systems and Damage Prevention Best Practices was published in August 1999. There was a real desire to ensure that the ’99 report had meaningful, far reaching impact. The Common Ground Alliance was organized in order to continue to grow the concept established by the previous studies.

**CGA: A force for change**

Change seldom comes without resistance, and it has been no different with the CGA. Some stakeholders are still of the old school. Some will cut a mismarked cable just for fun, some will move their marks after the fact, some will send an invoice before establishing the facts, and some will resist updating state one call laws, for whatever reason.

The CGA has done a remarkable job in bringing stakeholders together under the shared responsibility umbrella using the consensus process. Often we hear people say “things will get worse before they get better.” But, with the CGA in place, things will only get better.
Getting Utilities Back in One-Call

By Monty Zimmerman, UPROW Committee Chair, APWA

APWA and UPROW spotlight municipal involvement

At the APWA Congress in Columbus Ohio last month (September 2009), an educational session sponsored by the Utilities and Public Right of Way Committee (UPROW) titled “Utility Damage Prevention: What can your agency do?” featured information on how municipalities can effect changes in their communities to reduce underground damages. Having a Right of Way Management Department or Division is a crucial step in the overall effort to prevent damage to underground utilities.

APWA and UPROW feels that Right of Way Managers and Utility Coordinators in the various municipalities across the country are the first tier to effectively reducing underground damages through strong right of way ordinances and permitting practices. By working with CGA and local one call operators, those communities that do have strong right of way ordinances and permitting practices have seen a reduction in overall damages in their communities.

Other constructive steps were offered

Other activities crucial to reducing underground damages with a strong Right of Way Management ordinance are:

- Coordination with other agencies and utility operators
- Utility research and potholing prior to construction
- Timely and accurate locates; enforce call-ins for your projects
- Report underground damages to DIRT
- Public outreach

Is “opting out” happening in your area?

After this presentation was concluded the panel answered many questions about how to implement a Right of Way Management Program and how to submit to DIRT. However the most interesting question which caused the most discussion was how utility operators were able to opt out of one calls across the country.

With all of the interest in this issue, the Right of Way Management Sub-Committee decided to research this problem to determine if there have been situations where a utility has opted out of a state one call, why this happened, and also if a utility has opted out and then through efforts by damage prevention groups were able to bring that utility back into the one call system.

This will be the focus of this UPROW Sub-Committee over the next year. We know of some limited success in the state of Kansas bringing Water Districts back into the one call system on a limited basis, and work is still under way to fully incorporate them into the system without the stipulations that they now enjoy. Our committee has heard that there are other stories out there that are similar to those in Kansas and we will continue to investigate these instances to find out why these utilities were able to opt out, and, if possible, what was done to bring them back to the one call system.

Municipal involvement is essential

Damage prevention laws are designed to help insure the safety of those who work or live in the vicinity of underground facilities, but these laws are only effective if everyone participates in the process. The UPROW committee encourages all municipalities to participate in their local one call system as a means of reducing underground utility damages.

DIGGING UP MORE...

You can help! The UPROW committee would like to hear about instances where municipalities have opted out of the one call system as well as instances where they have been successively brought back into the system.

If you have information that will help with our investigation please contact Monty Zimmerman by e-mailing him at mzimmerman@ci.lenexa.ks.us
Since 1990, when the trenchless technology industry as a whole started and organized in the U.S., many major accomplishments have been made. The organizational activities have been led by many developments in trenchless equipment and methods. These developments include manufacturing more powerful and versatile horizontal directional drilling equipment including locating and tracking equipment, the manufacturing of first microtunneling equipment in the U.S. in 1997, and the development of more capable pipe bursting and pipe ramming equipment.

In the area of renewing deteriorated and old pipelines, we have seen developments in pipeline inspection technologies, and new pipeline and manhole renewal methods, the latest of which is the Sekisui Sustainable Pipeline Renewal (SPR) method. This article presents some of these developments in new technologies that enhance safety and productivity to construction and renewal of underground pipeline systems.

The Sekisui SPR (Sustainable Pipeline Renewal) Method

The Sekisui SPR method consists of a rigid PVC profile which is spirally wound into an existing pipeline. Successive wraps of profile are locked together, and the annular space between the liner and the existing pipe is grouted. The result is a strong composite pipe integrated with the existing pipeline. The fundamental steps of the SPR method are: cleaning the host pipe, winding the liner, and grouting the annular space.

Two winding methods can be used depending on the site conditions. These are the “Pushing” machine and the “Self Running” machine winding methods. The Self Running method has two variants, the Super SPR and the SPR Out-of-Round technology.

The Pushing Machine Winding Method

The winding machine is placed in the channel of the existing access chamber. The plastic profile strip is then fed from a spool above ground down to the machine. As the profile is spirally wound onto itself by the winding machine the interlocking edges of the profile are locked together to form a liner within the existing pipe.

The Self Running Machine Winding Method

The winding machine is positioned in the channel of the existing access chamber or at any point within the pipeline. Profile is fed to the machine from the center of a spool designed specifically for this process. The machine then rotates and advances down the pipeline. As the machine rotates it spirally winds the profile to form a pipe behind it. As this process leaves the wound pipe behind it, there is no friction between the liner and the host pipe. As a result, liners of much longer lengths can be produced.

SPR Out-of-Round Technology

The Out-of-Round technology has been developed to cope with all different shapes of noncircular pipes. The winding machine consists of a guide frame which is manufactured to the same shape as the existing pipe. Around this frame a series of driven rollers rotate which wind the profile together and move the machine forward. The machine is suitable for winding both normal and reinforced profiles into any prescribed cross-sectional shape.

Making Lateral Connection

After completion of the grouting process an initial hole is cut through the profile by feeding a cutter down the lateral pipe. The opening of the lateral connection is completed using a cutting machine inside the main line.

The Los Angeles County Trunk Sewer Project

This project has advanced the state-of-the-art in the trenchless industry by renewing 1800 feet of a...
114-inch diameter semi-elliptical trunk sewer. The original host pipe material was reinforced concrete with clay lining. Due to extensive corrosion, the clay tiles and most of the concrete cover on the reinforcement were pulverized. This added another challenge to the project, since due to shallow slope, debris was deposited inside the pipe. The cleaning of the host pipe was possible using high pressure spin jet to wash out the grease and to knock off tiles, cement, and rebar that were loosely attached to the host pipe structure. The cleaning of leftover debris was a major task.

The project was possible by designing a self supporting grout between the spiral wounded PVC pipe liner and the host pipe. This is a purely trenchless technology project, and the entire winding machine and the braces (formwork) were brought into the sewer from the access pits. This project was the first trial in the United States with an extraordinary method which has revolutionized the renewal industry for large diameter, odd-shape sewer pipes without any requirements for bypassing. Another breakthrough with this project is speed of the operation, since a winding machine was able to line the pipe at the speed of one foot per minute. The project location was challenging, since it was adjacent to a major oil refinery and the new liner pipe had to be designed to resist the major challenge of corrosive flow coming from the plant.

Conclusions

The trenchless industry as a whole has experienced tremendous growth over the past 15 years. The market will expand more once design professionals, municipalities and other decision makers begin to realize the benefits of trenchless technology methods and are provided with publications, reference books, standard guidelines and specifications. Training contractors, equipment operators, engineers, inspectors and other professionals involved in the use of these technologies, will enhance project safety, productivity and cost effectiveness.

DIGGING UP MORE...
We suggest the following references
- The Trenchless Technology Book
- Trenchless Technology Piping: Installation and Inspection Book
- Pipe Bursting Good Practices book
- HDD Good Practices book

both available from www.Amazon.com

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You can also visit the CUIRE web site at www.cuire.org
Going “green” has become a global environmental movement to insure the sustainability of our natural assets. While we consider these valuable resources critical to our long term survival, we don’t often consider the preservation of our underground utility assets in the same light.

It’s doubtful anyone really knows the true number of buried utilities here in the States, let alone globally. We do know that the average number of utility lines that are damaged each year is approximately 400,000 and rising, and with numbers this high it’s just a matter of time before we start experiencing more large scale disasters.

**Filling the infrastructure hole**

Today a gaping hole exists in the area of sound infrastructure management. The culprit is a lack of ownership due to an inadequate understanding of the importance of damage prevention. Twenty years ago we didn’t understand the impact our actions were having on our environment; now through education and implementation of policy we realize our responsibility and are taking action. Preservation of our underground resources is similar in that only through awareness can we work together to create better solutions.

One such solution is the One Call System, which has been in existence for more than twenty-years and currently plays a crucial role in damage prevention, especially here in the U.S. However, each program is operated independently, lacks central coordination, and is not supported on a global scale. As an example, I recently completed an auger bore project in the Virgin Islands for one of the largest oil refineries in the world. One Call was a completely new concept to the project managers. This is unfortunate but not uncommon.

**We can’t afford to cut corners**

Our current economy has not helped the situation. In an effort to make up for lost revenues, contractors are cutting corners. Boundaries are not being called in correctly, excavation areas are miscalculated, and often workers are not waiting for verification from facility owners. One Call centers have also been affected and are cutting back on personnel. As a result locators are doing twice the number of tickets per day.

Regardless of the economy, we as utility sub-contractors need to set an example for our peers. As the guys in the ground, we need to be diligent when it comes to locating and record keeping, competently exposing and mapping all possible conflicts. Whether public or private, marked or unmarked, utilizing safe and effective surface and sub-surface investigation techniques. Vacuum Technology is an excellent example. Vacuum excavating can expose an underground utility without the risk associated with other mechanized devices or even hand digs. While there are costs involved they are minimal compared to possible loss of life and valuable resources.

Utility management is a serious topic that needs to be addressed at all levels, nationally and internationally. Thankfully trenchless associations such as the Common Ground Alliance are currently working hard to address important issues such as education and regulation. The bottom line is, however, that we, as a global community, all need to take responsibility and do our part to insure a sustainable future.

**DIGGING UP MORE...**

Contact the Author Arvid Veidmark, III is Executive Vice-President at Specialized Services Company. You can contact him at 602-997-6164 or by e-mailing him at arvid@sscboring.com
Your safety and risk management programs seem to be doing their job. Safety issues on jobs have been minor, if not non-existent. Your insurance provider is happy because there are very few insurable losses and your company’s reserves are very low. So what is your biggest issue, if you even have one? If you do not, you will, and it will most likely be complacency.

Why complacency? When things are going well, it seems unnecessary to “preach to the choir”. Tips and concerns seem to be repetitive. So what should you do? How can you avoid slipping backwards? What do you do to keep your approach fresh?

**Analyze Trends**

Look at your company’s history. Hopefully you track all incidents, accidents and near-misses; if you don’t, you should. And if you track only accidents, start tracking near-misses now (some safety professionals prefer the term “near-hits”). It often is only a split second that separates a near-miss from a tragedy. Also, see what your competitors are encountering. Hopefully your relationship with them allows you to cooperate on industry issues like safety management and risk and loss control. Remember, loss rates as well as workers’ compensation rates are set for industry groups—helping a competitor with a safety problem may also help your company.

**Repeat Training**

Based upon your findings when analyzing trends, design your training. To avoid redundancy, look at new trainers, PowerPoints, etc. The same basic message maybe should stay the same, but then change the delivery or deliverer, maybe using your employees to teach an element of the program. Remember the importance of feedback, whether positive or negative; it will promote better training in the future.

**Protection of the Underground**

Work with your partners in underground protection and use the broadest interpretation of who your partners are. Strive to understand their issues and their role in the process. Remember that you can be an advocate of your own company, procedures and programs, but that does not mean that you are free to be an adversary towards everyone else. The same rule should apply to them.

**Do “sweat the small stuff”**

Often times, small issues are overlooked. Trench boxes were installed properly, fall protection was erected correctly, everyone was wearing their personal protective equipment, and so smaller items – like a damaged sling that missed inspection or a damaged extension cord – are overlooked. Unfortunately, as small issues start occurring, our tolerance for them increases. As that happens, it is easy to fall into a “well, everything seemed okay” mode that can, if unchecked, allow the problems to worsen. Remain vigilant and take the time to check everything. Look at your jobsite as if it is your first time seeing it; keep your view fresh.

**What is success?**

There are books, webinars, articles and presentations that deal with developing the proper safety metric. Many contractors look at workers compensation loss rates, insurance reserves and especially severity and frequency rates from recordable incidents on the OSHA log. Since these record, and thus indicate, after the fact, they are not proactive. Involve field personnel in inspections. If they call with a problem, do not give them the answer first. Ask them for what they think is the answer and help them evaluate it. See if they are thinking safely. Safety success is best measured by the endorsement of your employees.

**Where’s the finish line?**

If you are looking for some accomplishment as an outward display of safety success, I am not sure there is one. Safety is a process, not a finished product. Unlike many elements that are measured in a corporation, success in safety may seem elusive. It may be obtainable but can prove to be impossible to hold on to.
Getting to the Root of the Problem

A friend called. His sewer was backing up in his basement. He had tried to clear it himself, but the snake would not go through. Whatever it was, it was tough and needed some real power to cut it out.

Sounded like classic tree roots, but these days it can be something more, so I asked if they had new gas mains installed recently. Yes, he said, about 5 years ago, shortly after they moved in. Uh-oh. Tree roots like moisture and nutrients, and sewage is fast food for tree roots when gas mains get directionally drilled through sewer laterals.

So what is a gas main doing in a sewer lateral? Isn’t “one-call” supposed to prevent that? Not always. In many municipalities, sewer and water laterals are not marked, and in other cases, excavators don’t always pothole or don’t properly calibrate the sonde on the directional drill head. The result is sewer mains and laterals with utilities drilled through them.

Following an incident in a large city, a survey using remote cameras showed that 2% of 11,000 sewer laterals had gas mains bored through them. Another survey showed that there were utilities bored through sewer mains at the rate of one or two per mile of main.

Fortunately, this problem is getting attention and solutions are being developed. Legislative and regulatory changes are being made in some states, and in others, cooperative initiatives are starting.

Finding a Cooperative Solution

A major cooperative effort by a city and gas company involves sewer cleaning and Closed Circuit TV (CCTV) inspection and a Gas Main Renewal Program, according to Mark Bruce, President of the Cross Bore Safety Association. The Cincinnati Metropolitan Sewer District website indicated qualified bidders were being solicited for inspection of main sanitary and storm pipe sewers as well as connected building sewers (Laterals), in conjunction with Duke Energy Gas Main Installations.

The work would include: Sewer cleaning to enable CCTV Inspection; Pre and post-gas main installation CCTV Inspection of sewers and laterals (both sanitary and storm); Electronic locating of laterals and manholes; Surveying located points, and Documentation of data and activities.

At the end of this project, the city would know the condition and location (within an inch) of its sewer lines, the gas company would have its mains upgraded, and the citizens would not have to worry that cleaning out their sewer might blow up their house.

Logically it would appear that mapping of lines during pre-inspection should be sufficient to avoid damage during boring operations, but post-drilling inspections on several projects have found lines were damaged anyway, possibly due to improper calibration of the drill sonde.

Increased Focus to Come

The American Public Works Association’s “Utilities in the Public Right Of Way” committee has taken the crossbore issue as one to spotlight in the upcoming year, according to committee man, Murv Morehead, of the City of Overland Park, KS. Morehead says of pre and post-inspections of laterals: “The post inspection would be far more beneficial than pre construction... It’s helpful to know where the laterals are but even more important to know that they haven’t been compromised.” He and Monte Zimmerman of Lenexa, KS will give a presentation dealing with crossbores at next years’ APWA Congress.

Although many cities are not yet locating laterals, more and more are. California is one of the few states that specifically exempts gravity sewers from the “one-call” law. But when members of the municipal sewer association, the California Water Environment Association (CWEA) were surveyed at a meeting several years ago, better than three-quarters of the attendees said they did locate and mark laterals. Why? “Because it is the right thing to do.”

How did my friend come out? He had the gas line located prior to the plumber’s arrival and found the main was not near the blockage, and after a few hours of grinding, the roots were out. The plumber’s anxiety was also much lower.

DIGGING UP MORE...

For more information The Cross Bore Safety Association is a community of industry professionals that have joined together to address all aspects of utility cross bores for protection against loss of life, injury and property damage. Find out more at www.CrossBoreSafety.org
As contractors, our industry moves millions of tons of dirt everyday. With more and more utilities being placed underground, the task of safe excavation becomes increasingly difficult. Despite our best efforts, sometimes things go wrong and utilities are damaged. For this reason, we must be prepared to perform a thorough root cause damage investigation.

**“An ounce of prevention…”**

The best way to insure that we don’t pay for a utility damage is to not have one in the first place. Three things can help us to prevent these damages. First, know your excavation laws and responsibilities. Second, utilize white lining whenever possible. And third, take plenty of pre-excavation/post-locate photographs and/or videotape. For more information on these and other safety topics you can visit ExcavationSafetyOnline.com.

In addition, each crew should be equipped with the necessary forms, measuring devices and cameras to perform a quality investigation. A sample form can be found at www.CGA-DIRT.com.

A measuring device is a valuable tool in the documentation process. The HIT Kit (pictured below) can significantly improve the quality of your documentation and help to tell the story of the incident. Last but not least, a good camera is a must. For more information on the HIT Kit and other documentation tools, visit www.excavationsafetyonline.com/eso_videos.php.

**Safety is Number One**

In the event of utility damage, safety is the most important concern. Secure the area and ensure the safety of your crew and the public. Follow the mandated reporting requirements (which vary from state to state), but make sure that the utility is notified immediately. Don’t leave the site. If locate request information is not available on site, request this information as well as any pre-excavation documentation from the individual or department in your company that maintains it. This is information that the facility owner will need at some point in the process.

As soon as it is safe to do so, start the investigation process. Take plenty of pictures and make sure to utilize a measuring device in your pictures. This should eliminate any interpretation that comes from pictures with no measuring references.

Remember, twelve pictures of a hole in the ground with a damaged utility at the bottom do little to help the situation. Tell a story with the pictures. Start away from the damage and work towards it.

If videotape is used, make sure to talk about what is being taped and stick to the facts. Leave opinion and theories out of the equation.

**Eye witness accounts are invaluable**

Get statements from all parties involved. If there were witnesses to the event, get their contact information and have them write a statement that explains what they saw. Try to get statements from the utility and locator as well. If possible, have them sign and date their statement. Have each member of the crew write a statement as well. It should be in their own words and tell what they were doing at the time of the incident as well as what they saw.

These statements are important, because an invoice may not come for months or, in some cases, even years. By the time the invoice is received, the damage may be only a distant memory. The statement will help each individual remember details that would otherwise be lost.

Down time is another critical piece of information that should be captured. If you are at fault with regard to liability, repair is not the only cost to your company. Collecting down time information will help to put a true cost to the damage. If you are not liable, down time in some cases may be recoverable from the liable party.

After all the information is gathered, make sure to complete the damage investigation form on site. Include a detailed drawing or sketch of the incident. Take all of this documentation, as well as the pictures/videotape, and create a file to archive this information. It may not be needed for months or years, but it will be there when you do need it.

None of us want to have a utility damage, but in the event that one occurs, we must be prepared to document the incident.
The Common Ground Alliance (CGA) Data Reporting and Evaluation Committee (DR&EC) encourages all stakeholders in the damage prevention arena to submit facility event data to the Damage Information Reporting Tool (DIRT). We believe damage prevention is a shared responsibility, which includes providing facility event data. Events include damages and near-misses.

**All stakeholders are important**

Currently, one-call centers, natural gas transporters and telecommunication companies provide most of the facility event data in DIRT. One of the goals of the DR&EC is to increase the amount of data received from other stakeholders including excavators, electric, cable TV and water and sewer facility owners.

**Near-Miss events should be reported, too**

The DR&EC encourages the submittal of near-miss events. This data is easy to submit to DIRT using the same form you use to submit damage events. Damage Reporting Field Forms can be found at www.cga-dirt.com.

The DIRT User’s Guide linked to the www.cga-dirt.com website provides the following definitions.

**Damage:** Any impact or exposure that results in the need to repair an underground facility due to a weakening or the partial or complete destruction of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection or the housing for the line device or facility.

**Near Miss:** An event where a damage (as defined above) did not occur, but a clear potential for damage was identified. Some examples include, but are not limited to the following:

a. An excavator discovers a buried facility that was not marked or not marked accurately.

b. An excavator is found digging without having notified the One-Call Center.

c. An operator fails to respond to a locate request.

d. A One-Call Center incorrectly entered data regarding the work site.

The information on the following page is designed to help you identify the “root cause” of a near miss or damage to a buried facility. The Root Cause Tip Card helps clarify the information that needs to be reported on the Damage Report Field Form.

**Root cause by excavation equipment and excavator type: Summaries**

The 2008 DIRT annual report included multi-field analysis including a review of root cause data and the related equipment and excavator type. The findings presented in the following charts remain consistent with those from the 2007 report, illustrating that professional excavators are involved in a significant share of the incidents while operating excavation equipment. However, the reader is advised that DR&EC does not know what percentage of excavation is done by the “Hoe/Trencher” group or by “Contractor/Developer” group. For example, if 90% of the excavation is done by the “Contractor/Developer” group and only 70% of the damages are attributed to the same group, it would show this group works in a relatively safe manner.

**DIGGING UP MORE...**

The full Scoop is available to you any time simply by visiting www.cga-dirt.com
OPERATOR ISSUES

Facility Was Not Located or Marked: No locating or marking was completed prior to excavation activities.

Example:
- The company received a valid ticket, but did not mark, locate, or communicate with excavator prior to start of work.

Facility Marking or Location Not Sufficient: Includes all areas where marking was insufficient.

Example:
- Locator marked the work zone, but missed a service.
- Locator misread the ticket and did not locate the entire work zone.
- Facility was outside the tolerance zone.

Facility Could Not be Found/Located: Type of facility, depth, or lack of records prevented locating of facility.

Example:
- Plastic pipelines installed without tracer wires.
- HDD installed facilities at depths that cannot be located.
- Lack of records prevented locating the facility.

Abandoned Facility: This damage was caused by an abandoned facility issue.

Example:
- The abandoned facility may have been located, instead of the active facility.
- An abandoned facility may have been located, but it may have been found active after the excavation exposed the facility or damaged it.

Incorrect Facility Records/Maps: Incorrect facility records or maps led to an incorrect locate.

Example:
- Records show the facility located on the wrong side of the street, and ticket was cleared.
- This does not include facilities that are missing from maps.
- Considered selecting “Abandoned Facility” if this is the case.

Deteriorated Facility: Those situations in which an excavation disrupts the soil around the facility resulting in damage, failure, or interruption of service. However, the deterioration and not the excavation caused the facility damage.

Example:
- An excavator reports a gas odor, investigation proves it is coming from a old cast iron pipeline.

Previous Damage: A significant period of time has passed from the actual damage to the failure or discovery of the damages.

Example:
- Pipe coating was damaged during previous a excavation and was not reported. Subsequently, a corrosion leak occurred.

EXCAVATOR ISSUES

No Notification Made to the One-Call Center: Excavator did not call the one-call center, includes occasions when notification was not required.

Excavation Practices Not Sufficient: The excavator did not use proper care or follow the correct procedures when excavating near a facility.

Failure to Maintain Clearances While Using Power Equipment: as defined by applicable state regulations or underground facility owner.

Failure to Maintain Marks: The marks deteriorated or were lost and the excavator failed to request that they be restored/refreshed.

Failure to Support Exposed Facilities: Facility damage due to lack of support in accordance with generally accepted engineering practices or instructions provided by the facility owner.

Failure to Use Hand Tools: Failure to use hand tools where required.

Failure to Verify Facility by Test Hole: Some state regulations define a “tolerance zone” around buried facilities and require that the accuracy of the facility marks be verified by exposing the facility by hand digging prior to excavation within the tolerance zone, or require hand digging or special precautions when working within the tolerance zone.

Improper Backfilling: Damage caused by improper materials (ex: large/sharp rocks) in the backfill or improper compaction of the backfill.

Excavation Practices Not Sufficient-Other: Select this option when the above options do not apply.

Wrong Information Provided: This damage because an excavator provided the wrong excavation location to the notification center, or there was a miscommunication between stakeholders.

Example:
- Excavator used website to notify and indicated the wrong dig site.
- The locator cleared the ticket based on inaccurate information from the excavator.

Notification to the One-Call Center Made, But Not Sufficient: The excavator contacted the notification center, but did not provide sufficient information, or the excavator did not provide sufficient notification time according to state law.

Example:
- Excavator did not wait required time before digging.
- Excavator was excavating on an expired ticket.

ONE-CALL CENTER ISSUES

One-Call Center Notification Error: Includes all issues related to the center such as incorrectly entered data, ticket transmission failures, and stakeholder omissions, et al.

Example:
- This would include damages that occurred because the center’s database registry had not been updated to reflect correct location of gas facilities.
- The one-call center system crashed and failed to deliver the ticket.
For years travelers making their way across the Midwest and Great Plains witnessed American agriculture at its best. Miles upon miles of lush cornfields and pastures provided a scenic setting and reassurance that rural America truly is the breadbasket for our nutritional needs.

Today, a new technology is appearing on the horizon, one that many believe is a new kind of breadbasket; one that will help meet the ever-increasing global “appetite.” Wind energy has found a home in the Midwest and Great Plains, where the wind is plentiful and turbine farms can be seen for miles. However, the American heartland isn’t the only place adopting this new renewable technology.

Global wind energy adoption is incredible, and by the end of 2008, the world’s installed capacity reached 120 gigawatts (GW), enough energy to power up to 120 million average sized homes.

Sporadic but steady growth expected for the future

The massive growth in the U.S. wind market in 2008 increased the country’s total wind-power-generating capacity by half. However, Europe continues to be the global leader in wind energy adoption. So what’s driving this demand? A number of factors, including the need to find alternative energy sources, the rising profile of environmental issues such as climate change, and improvements in wind-power technology. In addition, there is much political support in terms of financial incentives and clout for the advancement of this industry.

Experts predict growth will decline as financing for new projects becomes limited and orders for new turbines and components decrease due to the global financial crisis. Despite these short-term setbacks, the wind industry continues to be in a strong strategic position, and the U.S. Department of Energy predicts that wind power could provide 20 percent of the United States’ electricity by 2030. The Global Wind energy Council (GWeC) predicts that in 2013, global wind-generating capacity will stand at 332 GW, a nearly three-fold increase from current levels.

From growth come new opportunities

This growth is fueling new opportunities for contractors to be involved in the construction of these stately towers. The construction process includes site preparation at individual turbine locations, laying turbine foundations, access road construction and transmission line installation.

Underground contractors have a unique opportunity to help install the vast network of underground transmission lines. These cables form the infrastructure for transporting the energy generated by the turbines to the grid and, eventually, customers several hundreds of miles away. While each wind-farm design is different, a majority of installations use a common network of lines including three high-voltage cables, one fiber optic transmission line and a ground wire.

The adoption of wind energy is staggering and creating many new and exciting opportunities for the underground construction industry.

DIGGING UP MORE...

For Additional Information on Wind Energy, visit the following web sites.

American Wind Energy Association
www.awea.org

Global Wind Energy Council
www.gwec.net

North American Wind Power
www.nawindpower.com

Photos courtesy of Morse Electric and Al Franseen
Damage Prevention Is A Shared Responsibility.

811

Know what’s below. Call before you dig.

Please Support April 2010 As NATIONAL SAFE DIGGING MONTH

CGA
Common Ground Alliance

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Reduce Damages and Cut Costs!

The CGA Excavation Safety Conference & Expo is the only national conference focusing on Damage Prevention and Excavation Safety.

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Over 100 exhibiting companies!
With more than 1,400 attendees, this event is where the underground utility industry comes together.

Be sure to be there for what previous attendees are calling “the premier conference for anyone involved in the Damage Prevention industry!”

For information or to register: ExcavationSafetyOnline.com • 866-279-7755
5-1: One-call Facility Locate Request

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.

5-2: White Lining

Practice Statement: When the excavation site can not be clearly and adequately identified on the locate ticket, the excavator designates the route and/or area to be excavated using white pre-marking prior to the arrival of the locator.

5-3: Locate Reference Number

Practice Statement: The excavator receives and maintains a reference number from the one call center that verifies the locate was requested.

5-4: Pre-excavation Meeting

Practice Statement: When practical, the excavator requests a meeting with the facility locator at the job site prior to the actual marking of facility locations. Such pre-job meetings are important for major, or unusual, excavations.

5-5: Facility Relocations

Practice Statement: The excavator coordinates work which requires temporary or permanent interruption of a facility owner/operator’s service with the affected facility owner/operator in all cases.

5-6: Separate Locate Requests

Practice Statement: Every excavator on the job has a separate one call reference number before excavating.

5-7: One Call Access (24/7)

Practice Statement: The excavator has access to a one call center 24 hours per day, 7 days a week.

5-8: Positive Response

Practice Statement: The excavator is notified by the underground facility owner/operator of the tolerance zone of the underground facility by marking, flagging, or other acceptable methods at the work site, or is notified that a no conflict situation exists. This takes place after notification from the one call center to the underground facility owner/operator within the time specified by state/provincial law.

5-9: Facility Owner/operator Failure To Respond

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, the excavator re-calls the one call center. However, this does not preclude the excavator from going on with 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 his endeavors.

5-10: Locate Verification

Practice Statement: Prior to excavation, excavators verify they are at the correct location and verify locate markings and, to the best of their ability, check for unmarked facilities.

5-11: Documentation Of Marks

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.

5-12: Work Site Review With Company Personnel

Practice Statement: Prior to starting work, the excavator reviews the location of underground facilities with site personnel.

5-13: One call Reference Number At Site

Practice Statement: The excavator’s designated competent person at each job site has the one call ticket number.

5-14: Contact Names And Numbers

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.

5-15: Facility Avoidance

Practice Statement: The excavator uses reasonable care to avoid damaging underground facilities. The excavator plans the excavation so as to avoid damage or minimize interference with the underground facilities in or near the work area.

5-16: Federal And State Regulations

Practice Statement: The excavator adheres to all applicable federal and state/provincial safety regulations, which includes training as it relates to the protection of underground facilities.

5-17: Marking Preservation

Practice Statement: The excavator protects and preserves the staking, marking, or other designations for 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 no longer visible.

5-18: Excavation Observer

Practice Statement: The excavator has an observer to assist the equipment operator when operating excavation equipment around known underground facilities.
5-19: Excavation Tolerance Zone

Practice Statement: The excavator observes a tolerance zone which is comprised of the width of the facility plus 18" 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 more than 18".

5-20: Excavation Within Tolerance Zone

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.

5-21: Mis-marked Facilities

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.

5-22: Exposed Facility Protection

Practice Statement: Excavators support and protect exposed underground facilities from damage.

5-23: Locate Request Updates

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 would best be 10 working days but not to exceed 20 working days.

5-24: Facility Damage Notification

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, groves, or other damages to facility lines, conduits, coatings or cathodic protection will be reported.

5-25: Notification Of Emergency Personnel

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/operator.* The excavator takes reasonable measures to protect themselves and those in immediate danger, general public, property, and the environment until the facility owner operator or emergency responders have arrived and completed their assessment.**

5-26: Emergency Excavation

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 to assure the continuity of public utility service or public transportation.

5-27: Backfilling

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 to be buried in the excavation.

5-28: As-built Documentation

Practice Statement: Contractors installing underground facilities notify the facility owner/operator if the actual placement is different from expected placement.

5-29: Trenchless Excavation

Practice Statement: All stakeholders adhere to all Best Practices and the following general guidelines prior to, during and after any trenchless excavation (as applicable):

- 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 due to local conditions the facility owner and the excavator meet to discuss how to safely proceed with the excavation.
- Stop the trenchless excavation operations if an abnormal condition, unknown substructure or other hidden hazard is encountered. Proceed safely only after positive identification has been made. (Additional Information: Refer to practices 2-13 & 4-19)

5-30: Emergency Coordination with Adjacent Facilities

Practice Statement: Emergency response planning includes coordination with emergency responders and other above and/or underground infrastructure facility owner/operators identified by the Incident Commander through the Incident Command System/Unified Command (ICS/UC) during an emergency.

5-30: No Charge for Providing Underground Facility Locations

Practice Statement: Upon notification by one call centers, locations of underground facilities are provided by operators at no cost to excavators.

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* TR-2001-02A: Amendment Approved by CGA Board on November 30, 2001
** TR-2001-02B: Amendment Approved by CGA Board on September 27, 2002
† TR-2002-03: Amendment Approved by CGA Board on September 16, 2005
†† TR-2005-02: Amendment Approved by CGA Board on September 8, 2006
††† TR-2007-06: Amendment Approved by CGA Board on August 8, 2008

(Continued from Page 28)
The following is presented for informational purposes only. One-call center information and laws are subject to change. Please consult the one-call center website for current information. Infrastructure Resources, LLC attempted to verify all information for accuracy as of the date of this publication, but is not responsible for incorrect or missing information.

### ALABAMA

**Alabama One-Call**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: N
    - Positive Response: Y
  - Exemptions:
    - DOT: Y
    - Homeowner: N
    - Railroad: Y
    - Agriculture: Y
    - Depth: 12"**
- **Notifications Accepted**:
  - Damage: Y
  - Design: Y
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 18'
- **Law Link**: www.al1call.com/state_law.html

**Alaska Digline, Inc.**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: Y
    - Positive Response: N
  - Exemptions:
    - DOT: N
    - Homeowner: N
    - Railroad: N
    - Agriculture: N
    - Depth: N
- **Notifications Accepted**:
  - Damage: N
  - Design: N
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 24'
- **Law Link**: www.akonecall.com/faq.htm

**Arizona Blue Stake, Inc.**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: N
    - Positive Response: Y
  - Exemptions:
    - DOT: N
    - Homeowner: N
    - Railroad: N
    - Agriculture: N
    - Depth: N
- **Notifications Accepted**:
  - Damage: N
  - Design: Y
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 24'
- **Law Link**: www.azbluestake.com/main/law/law.html

### ARKANSAS

**Arkansas One-Call System, Inc.**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: Y
    - Positive Response: Y
  - Exemptions:
    - DOT: Y
    - Homeowner: N
    - Railroad: N
    - Agriculture: Y
    - Depth: 14 calendar days
- **Notifications Accepted**:
  - Damage: Y
  - Design: Y
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 18’
- **Law Link**: www.aronecall.com/state_law.html

### CALIFORNIA

**Underground Service Alert North**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: Y
    - Positive Response: Y
  - Exemptions:
    - DOT: Y
    - Homeowner: Y
    - Railroad: N
    - Agriculture: N
    - Depth: 28 days
- **Notifications Accepted**:
  - Damage: Y
  - Design: Y
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 24’
- **Law Link**: www.usanorth.org/marking.php?user=excavators

**Underground Service Alert Southern California**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: N
    - Positive Response: Y
  - Exemptions:
    - DOT: Y
    - Homeowner: Y
    - Railroad: N
    - Agriculture: Y
    - Depth: N
- **Notifications Accepted**:
  - Damage: N
  - Design: N
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 24’
- **Law Link**: www.usanorth.org/marking.php?user=excavators

### COLORADO

**Utility Notification Center of Colorado**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: Y
    - Positive Response: Y
  - Exemptions:
    - DOT: Y
    - Homeowner: N
    - Railroad: Y
    - Agriculture: N
    - Depth: 18"**
- **Notifications Accepted**:
  - Damage: Y
  - Design: Y
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 18’
- **Law Link**: www.uncc2.org/web/pdf/colorado_one_call_law.pdf

**Call Before You Dig**
- **State Laws & Provisions**
  - Coverage: Statewide
  - Requirements:
    - Mandatory Membership: N
    - Positive Response: N
  - Exemptions:
    - DOT: N
    - Homeowner: N
    - Railroad: N
    - Agriculture: Y
    - Depth: N
- **Notifications Accepted**:
  - Damage: Y
  - Design: N
  - Emergency: Y
  - Overhead: N
- **Tolerance zone**: 18’
- **Law Link**: www.cbyd.com/education_excavator.html

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* the depth of 12” is the exemption for Agricultural purpose less than this depth
** excludes weekends and state-recognized holidays
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</tbody>
</table>

** Tolerance zone: Minimum number of days before work can begin. ** Exemptions: Positive Response: Yes, Negative Response: No. ** Notifications Accepted: Damage: Yes, Design: No, Emergency: Yes. ** Tolerance zone: Minimum number of days required. ** Marks Valid: 28 calendar days. ** Please report any changes to this information by calling 866-279-7755.
<table>
<thead>
<tr>
<th>State</th>
<th>One-Call &amp; State Law</th>
<th>Coverage Statewide</th>
<th>Civil Penalties</th>
<th>Emergency Clause</th>
<th>Exemptions</th>
<th>Notifications Accepted</th>
<th>Tolerance zone</th>
<th>Law Link</th>
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<tbody>
<tr>
<td>Illinois</td>
<td>Dig Safe</td>
<td>Y</td>
<td>N</td>
<td>N</td>
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<td>Design</td>
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<td><a href="http://www.digsafe.com/laws_statelaws.htm">www.digsafe.com/laws_statelaws.htm</a></td>
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<td>Indiana</td>
<td>Indiana 811</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>DOT</td>
<td>Design</td>
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<td><a href="http://www.indiana811.org/law.php">www.indiana811.org/law.php</a></td>
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<td>Iowa</td>
<td>Iowa One-Call</td>
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<td>N</td>
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<td>Design</td>
<td>18&quot;</td>
<td><a href="http://www.iowaonecall.com">www.iowaonecall.com</a></td>
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<td>Kentucky</td>
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<td>Design</td>
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<td>Maine</td>
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<td>N</td>
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<td>Design</td>
<td>18&quot;</td>
<td><a href="http://www.missutility.net/law_policies/law.htm">www.missutility.net/law_policies/law.htm</a></td>
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<td>Maryland</td>
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<td>N</td>
<td>N</td>
<td>DOT</td>
<td>Design</td>
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<td><a href="http://www.missutility.net/maryland/mdstatelaw.asp">www.missutility.net/maryland/mdstatelaw.asp</a></td>
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<td>Massachusetts</td>
<td>Dig Safe</td>
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<td><a href="http://www.digsafe.com/laws_statelaws.htm">www.digsafe.com/laws_statelaws.htm</a></td>
</tr>
</tbody>
</table>

* Marks will be done in a manner that will last for a minimum of five working days on any non-permanent surface, or a minimum of ten working days on any permanent surface. If the excavation will continue for a longer period of time, the excavator may contact the Iowa One Call Center to have the lines re-marked.

** 36" in Montgomery County
<table>
<thead>
<tr>
<th>State</th>
<th>State Laws &amp; Provisions</th>
<th>Exemptions:</th>
<th>Notifications Accepted:</th>
<th>Tolerance zone:</th>
<th>Law Link:</th>
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</thead>
<tbody>
<tr>
<td>State</td>
<td>One-Call Service</td>
<td>State Laws &amp; Provisions</td>
<td>Exemptions</td>
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<td>Tolerance zone</td>
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</tbody>
</table>

**Advance Notice:**

- North Dakota: 10 calendar days
- New Jersey: Three full business days
- New Mexico: Two working days
- New York: Ten working days
- Oklahoma: Seven days

**Marks Valid:**

- New Jersey: 45 business days
- New Mexico: Ten working days
- New York: Ten working days
- North Carolina: Ten working days
- North Dakota: As long as visible
- Oklahoma: 10 business days

**Marks Required:**

- New Jersey: Ten working days
- New Mexico: Ten working days
- New York: Ten working days
- North Carolina: Ten working days
- North Dakota: Ten working days
- Oklahoma: Ten business days

**FAX Tickets Available:**

- New Jersey: 732-394-3011
- New Mexico: 800-727-8809
- New York: Y
- New Jersey: Y
- New Mexico: Y
- New York: Y

**Hours:**

- New Jersey: 24 hours
- New Mexico: 24 hours
- New York: 24 hours
- New Jersey: 24 hours
- New Mexico: 24 hours
- New York: 24 hours

**Online Tickets:**

- New Jersey: Y
- New Mexico: Y
- New York: Y
- New Jersey: Y
- New Mexico: Y
- New York: Y

**Affected States:**

- New Jersey: New York, Ohio
- New Mexico: Oklahoma, Texas
- New York: Utah, Wyoming
- North Carolina: North Dakota, South Carolina, Virginia
- North Dakota: South Dakota
- Oklahoma: Arkansas, Louisiana, Missouri, Texas

**Depth:**

- New Jersey: 24" Overhead
- New Mexico: 24" Overhead
- New York: 24" Overhead
- North Carolina: 365 days
- North Dakota: 48 hours, excluding weekends and holidays
- Oklahoma: 48 hours

**Design:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Emergency:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Railroad:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Hand Dig Clause:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Damage:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Overhead:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Railroad:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Hand Dig Clause:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Civil Penalties:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Excavator Permits Issued:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Mandatory Premarks:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT

**Mandatory Membership:**

- New Jersey: DOT
- New Mexico: DOT
- New York: DOT
- North Carolina: DOT
- North Dakota: DOT
- Oklahoma: DOT
Oregon Utility Notification Center
800-332-2344 • www.digsafelyoregon.com
Hours: 24 hours, 7 days
FAX Tickets Available: 503-293-0826
Online Tickets: Y
Advance Notice: Two days to the life of the project
Marks Valid: The life of the project

State Laws & Provisions
Coverage Statewide Y Mandatory Membership Y Positive Response Y
Civil Penalties Y Excavator Permits Issued N Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks Y Damage Reporting N

Exemptions: DOT N Homeowner 12” Railroad N Agriculture N Depth N
Notifications Accepted: Damage Y Design Y Emergency Y Overhead N
Tolerance zone: 24” Law Link: www.digsafelyoregon.com/faqs/ounc_ors_oar.htm

Pennsylvania One Call System, Inc.
800-242-1776 • www.paoecall.org
Hours: 24 hours, 7 days
FAX Tickets Available: N
Online Tickets: Y
Advance Notice: Three to ten business days during construction phase; ten to 90 days, design phase
Marks Valid: As long as equipment is on site

State Laws & Provisions
Coverage Statewide Y Mandatory Membership Y Positive Response Y
Civil Penalties Y Excavator Permits Issued Y Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks Y Damage Reporting Y

Exemptions: DOT N Homeowner N Railroad N Agriculture Y Depth N
Notifications Accepted: Damage Y Design Y Emergency Y Overhead N
Tolerance zone: 18” Law Link: www.paonecall.org/palaw

Dig Safe
888-344-7233 • www.digsafe.com
Hours: 24 hours, 7 days
FAX Tickets Available: N
Online Tickets: Y
Advance Notice: 48 hours, excluding weekends and holidays
Marks Valid: 30 days (exemption state contract work)

State Laws & Provisions
Coverage Statewide Y Mandatory Membership N Positive Response N
Civil Penalties Y Excavator Permits Issued Y Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks N Damage Reporting Y

Exemptions: DOT N Homeowner N Railroad N Agriculture Y Depth N
Notifications Accepted: Damage Y Design N Emergency Y Overhead N
Tolerance zone: 18” Law Link: www.digsafe.com/laws_statelaws.htm

Palmetto Utility Protection Services, Inc.
888-721-7877 • www.sc1pps.org
Hours: 7:30 AM - 5:30 PM, M-F
FAX Tickets Available: 803-750-4867
Online Tickets: Y
Advance Notice: 72 hours, no more than ten days
Marks Valid: 15 working days

State Laws & Provisions
Coverage Statewide Y Mandatory Membership N Positive Response N
Civil Penalties Y Excavator Permits Issued N Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks N Damage Reporting N

Exemptions: DOT Y Homeowner Y Railroad N Agriculture N Depth N
Notifications Accepted: Damage N Design Y Emergency Y Overhead N
Tolerance zone: 30” Law Link: www.scstatehouse.net/code/h58c035.htm

South Dakota One-Call Center
800-781-7474 • www.sdonecall.com
Hours: 24 hours
FAX Tickets Available: N
Online Tickets: Y
Advance Notice: 48 hours, excluding weekends and holidays
Marks Valid: 21 working days from start date on ticket

State Laws & Provisions
Coverage Statewide Y Mandatory Membership Y Positive Response Y
Civil Penalties Y Excavator Permits Issued Y Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks Y Damage Reporting N

Exemptions: DOT N Homeowner N Railroad N Agriculture Y Depth N
Notifications Accepted: Damage N Design Y Emergency Y Overhead N
Tolerance zone: 18” Law Link: www.sdonecall.com/law.asp

Tennessee 811
800-351-1111 • www.tnonecall.com
Hours: 24 hours
FAX Tickets Available: 615-366-5021
Online Tickets: Y
Advance Notice: Not less than three working days and not more than ten working days
Marks Valid: 15 calendar days

State Laws & Provisions
Coverage Statewide Y Mandatory Membership Y Positive Response Y
Civil Penalties Y Excavator Permits Issued N Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks Y Damage Reporting N

Exemptions: DOT N Homeowner N Railroad N Agriculture Y Depth N
Notifications Accepted: Damage N Design Y Emergency Y Overhead N
Tolerance zone: 24” Law Link: www.tnonecall.com/index-3.html

Texas Excavation Safety System
800-344-8377 • www.digtess.org
Hours: 24 hours
FAX Tickets Available: 800-690-1291
Online Tickets: Y
Advance Notice: Two working days, but not more than 14 days
Marks Valid: 14 working days

State Laws & Provisions
Coverage Statewide Y Mandatory Membership Y Positive Response Y
Civil Penalties Y Excavator Permits Issued N Hand Dig Clause Y
Emergency Clause Y Mandatory Premarks N Damage Reporting Y

Exemptions: DOT N Homeowner N Railroad N Agriculture N Depth 16”
Notifications Accepted: Damage Y Design Y Emergency Y Overhead N
Tolerance zone: 18” plus half the diameter of the pipeline from the outside edge of either side of the pipeline
Law Link: www.rrc.state.tx.us/formpr/tdr.html

Effective September 1, 2007, excavators are subject to the requirements of Chapter 18 of the Railroad Commission of Texas. The rule requires excavators to take additional damage prevention and safety measures when excavating near a pipeline. An example of some of the new requirements include, but are not limited to, white lining the area to be excavated when the location of an excavation is unclear, providing the method of positive response to the one-call center, making a second notice to the one-call center if a positive response is not made or evidence of a of pipeline is present, and taking additional safety measures when excavating within the tolerance zone. The rule has very limited exemptions, mandatory non-compliance reporting and enforcement of fines and penalties. All excavators should review the new rule requirements.

Please report any changes to this information by calling 866-279-7755.
The Pipeline and Hazardous Materials Safety Administration (PHMSA) works to protect the American public and the environment by ensuring the safe and secure movement of hazardous materials to industries and consumers by all transportation modes, including the nation’s pipelines. There are over 2 million miles of pipelines buried in the United States, which is enough to circle the earth 83 times. PHMSA and its Community Assistance & Technical Services (CATS) team are charged with the task of facilitating clear communications among all pipeline stakeholders, including the public, the operators and government officials. CATS managers are located within five geographical regions. Contact information for the CATS managers for your state is noted here.

OPS Central Region
Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
Harold Winnie: harold.winnie@dot.gov
Phone: 816-329-3836
Elizabeth Komiskey: elizabeth.komiskey@dot.gov
Phone: 202-366-3169

OPS Southern Region
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee
Joe Mataich: joseph.mataich@dot.gov
Phone: 404-832-1159
Wayne Lemoi: wayne.lemoi@dot.gov
Phone: 404-832-1160

OPS Eastern Region
Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia
Alex Dankanich: alex.dankanich@dot.gov
Phone: 202-550-0481
Karen Gentile: karen.gentile@dot.gov
Phone: 609-433-6650

OPS Southwestern Region
Arkansas, Louisiana, New Mexico, Oklahoma, Texas
John Jacobi: john.jacobi@dot.gov
Phone: 214-512-3759

OPS Western Region
Tom Finch: thomas.finch@dot.gov
Phone: 720-963-3175
Ross Reineke: ross.reineke@dot.gov
Phone: 720-963-3160

Community Assistance and Technical Services (CATS)
www.phmsa.dot.gov/about/org

Canada One-Call

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y

Ontario One-Call, Ltd.
800-400-2255 • www.on1call.com
Hours: 24 hours, 365 days
FAX Tickets Available: 800-400-8876
Advance Notice: Minimum of five days for standard requests
Marks Valid: 30 days

British Columbia
BC One-Call
800-474-6886 • www.bconeall.bc.ca
Hours: 7:00 AM - 5:00 PM
FAX Tickets Available: 604-451-0344
Advance Notice: Three working days excluding Saturdays, Sundays and holidays
Marks Valid: Entire length of project as long as excavation started within 14 days of placing the request

Quebec
Info-Excavation
800-663-9228 • www.info-ex.com
Hours: 24 hours
FAX Tickets Available: 514-331-0791
Advance Notice: 72 hours (Three working days)
Marks Valid: 30 days

Saskatchewan
Sask 1st Call
866-628-4888 • www.sask1stcall.com
Hours: 8:00 AM - 7:00 PM, M-F **
FAX Tickets Available: 866-455-5559
Advance Notice: Two full working days
Marks Valid: Ten working days

Community Assistance and Technical Services (CATS)
www.phmsa.dot.gov/about/org

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Wayne Lemoi: wayne.lemoi@dot.gov
Phone: 404-832-1160

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Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia
Alex Dankanich: alex.dankanich@dot.gov
Phone: 202-550-0481
Karen Gentile: karen.gentile@dot.gov
Phone: 609-433-6650

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Arkansas, Louisiana, New Mexico, Oklahoma, Texas
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Phone: 214-512-3759

OPS Western Region
Tom Finch: thomas.finch@dot.gov
Phone: 720-963-3175
Ross Reineke: ross.reineke@dot.gov
Phone: 720-963-3160

Alaska Contact: Bill Flander: bill.flander@dot.gov
Phone: 907-271-6518

Canada One-Call
Alberta One-Call Corporation
800-242-3447 • www.alberta1call.com
Hours: 6:00 AM - 8:00 PM, M-F (Emergency: 24/7)
FAX Tickets Available: 800-940-3447
Online Tickets: Y
Advance Notice: Two full working days
Marks Valid: 14 days*

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y
Tolerance zone: 1 m (39")

Ontario One-Call, Ltd.
800-400-2255 • www.on1call.com
Hours: 24 hours, 365 days
FAX Tickets Available: 800-400-8876
Advance Notice: Minimum of five days for standard requests
Marks Valid: 30 days

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y

British Columbia
BC One-Call
800-474-6886 • www.bconeall.bc.ca
Hours: 7:00 AM - 5:00 PM
FAX Tickets Available: 604-451-0344
Advance Notice: Three working days excluding Saturdays, Sundays and holidays
Marks Valid: Entire length of project as long as excavation started within 14 days of placing the request

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y

Quebec
Info-Excavation
800-663-9228 • www.info-ex.com
Hours: 24 hours
FAX Tickets Available: 514-331-0791
Advance Notice: 72 hours (Three working days)
Marks Valid: 30 days

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y

Saskatchewan
Sask 1st Call
866-628-4888 • www.sask1stcall.com
Hours: 8:00 AM - 7:00 PM, M-F **
FAX Tickets Available: 866-455-5559
Advance Notice: Two full working days
Marks Valid: Ten working days

Provincial Laws & Provisions
Coverage Statewide: Y
Civil Penalties: N
Emergency Clause: N
Exemptions: DOT: N
Notifications Accepted: Damage: Y

* extendable to 30 days provided certain conditions are met  ** hand tools only  *** except provisional holidays

Please report any changes to this information by calling 866-279-7755.
Industry Publications

**Compact Equipment** compactequip.com

*Compact Equipment* is a trade magazine geared toward the owner/operator and business professionals of construction equipment in the commercial, landscape and rental markets. It is produced by the Cleveland-based publishing company Benjamin Media Inc., and its staff covers machines such as skid steers, compact excavators and commercial trucks as well as business and work-related topics including market analysis, training, safety, insurance, rental, financing, project estimating and more.

**Contractors Hot Line** contractorshotline.com

*Contractors Hot Line* is the industry’s weekly print & digital source to find the latest equipment for sale from general road building equipment, mine & quarry, cranes, as well as parts and attachments, classifieds, equip pics, want to buys, and current construction auctions. Our print publication is complimented with an exact replica in digital format as well as all the current inventory for sale available to search on our database of over 70,000. Stay in touch with what’s going on with the industry as it happens at www.contractorshotline.com.

**Damage Prevention Professional** damagepreventionprofessional.com

*Damage Prevention Professional* Magazine focuses on providing in-depth solutions and insightful information on applications and technologies that are shaping the future of damage prevention and excavation safety. This quarterly magazine will feature a wide array of articles that will benefit ALL stakeholders. If you work for a company who owns buried assets or if you are involved in any type of excavation work, you can help prevent damage to our buried infrastructure.

**Equipment World** EquipmentWorld.com

*Equipment World* is the leading trade publication for construction contractors, equipment manufacturers and dealers and providers of services and supplies to the construction industry. Articles cover economic, legislative, general interest, industry and product information of interest to those involved in: utility construction, road and bridge construction, earthmoving and civil engineering and commercial and nonresidential building.

**Government Engineering Journal** GovEngr.com

*Government Engineering Journal* and e-Government Engineering have a combined circulation of over 55,000 engineers, directors, and superintendents responsible for potable water supplies, wastewater treatment, solid waste collection and disposal, transportation, and grounds maintenance.

**Modern Contractor Solutions** moderncontractorsolutions.com

*Modern Contractor Solutions* is a national magazine tailored to meet the day-to-day business needs of commercial, general and concrete contractors. The articles are brief and concise, getting right to the point, which is exactly what contractors have been looking for in a magazine. With a strong focus on today’s construction industry, Modern Contractors Solutions offers a unique format for valuable information and insight. We offer solution-driven editorial content that contractors can use every day in running their businesses.

**OSP Magazine** OSPmag.com

Service Providers rely on the OSP brand for concise information about comprehensive network architecture solutions and technology best practices. The OSP brand is a multi-channel educational resource integrating print, online, and custom events. The HOW-TO educational resource for communications and entertainment providers, OSP connects advertisers with key buyers and decision makers for maximum exposure and enhanced brand awareness.

**Pipeline & Gas Journal** PGJonline.com

Celebrating 150 years in publication, the Pipeline & Gas Journal is the worldwide recognized authority on pipelines. Reaching the pipeline transmission, gas utility and related engineering and construction markets, PG&J reaches a circulation of almost 29,000 focused exclusively on the oil and gas pipeline market.

**Pipeline and Gas Technology** hartenergy.com

*Pipeline and Gas Technology* is read by senior executives, managers and engineers at all levels in the oil and gas operating and gas distribution utility companies and by pipeline contractors. The magazine provides application information to the global oil and gas transportation and gas distribution markets that enables engineers, managers and contractors to perform their jobs more efficiently, safely and economically. Additionally, information is provided on management and market trends that will help the reader make business decisions tailored to future market demands.

**Site Prep** SitePrepMag.com

*Site Prep* focuses on the challenges and opportunities of site preparation, including site clearing, earthmoving, utilities and environmental activities. We cover emerging technologies for and the evolving interaction among contractors, engineers and related professions. Through in-depth coverage, we provide useful information on developmental trends, project management strategies, business processes and successful case studies.

**Trenchless Technology** TrenchlessOnline.com

*Trenchless Technology* is “Your #1 Trenchless Source”. Reaching over 37,000 subscribers, Trenchless Technology is the premier communications vehicle for your advertisement. Our readers include industry professionals in the water and wastewater, cable and electric, and gas markets, such as engineers, contractors, city officials, manufacturers and distributors.

**Underground Construction** UndergroundConstructionMagazine.com

*Underground Construction*, with the largest industry circulation of more than 38,000, has an award-winning record of editorial excellence. It is the leading and most respected publication covering the construction and rehabilitation of underground infrastructure, including water, sewer, gas distribution, power, pipelines and telecom.

**Utility Contractor** UtilityContractorOnline.com

*Utility Contractor* is the official magazine of the National Utility Contractors Association. Reaching 20,000 subscribers, Utility Contractor has exclusive market coverage, from legislative issues to managerial issues for the entire utility construction industry.

**Utility Products** UtilityProducts.com

*Utility Products*, published since 1997, is a monthly magazine that provides influential product information to the decision-makers and specifiers in the power, telephone and CATV markets. The magazine reaches more than 38,000 qualified subscribers and is BPA-audited. Magazine subscribers include investor-owned utilities, cooperatives, municipalities and contractors. Utility Products provides advertisers with an interesting and reliable source of information that aids them in their purchasing decisions.

**International Locate Rodeo**

Everybody wins. The best competitors win prizes. All competitors win recognition, appreciation, admiration. The public wins, too – with higher quality utility locate and a higher level of safety. Ultimately, the International Utility Locate Rodeo will lead to higher standards of quality and performance. Visit LocateRodeo.com for more information.
Who knew staying up-to-date would have such a huge impact on my business?

An exciting new publication devoted to protecting the buried infrastructure and the liabilities associated with working around it.

Damage Prevention Professional focuses on providing current solutions and insightful information on applications and technologies shaping the future of damage prevention and excavation safety.

A quarterly magazine featuring a wide array of articles that benefit ALL stakeholders, with a different in-depth focus every issue.

Winter: Public Awareness
Spring: Locating & Marking
Summer: SUE and Vacuum Excavation
Fall: Mapping and Technology

Each issue will contain insights and perspectives from all stakeholder groups.

Articles by industry professionals representing diverse areas including excavators, utilities, regulators, municipalities, one-call centers and much, much more.

Find out more at DamagePreventionProfessional.com
Help us keep improving the Excavation Safety Guide!

The Excavation Safety Guide is designed to be a reference for readers to use all year. The articles are concise and focused on current industry trends and technologies.

In order for us to make this Guide a useful tool for our readers, we need your comments and suggestions.

Please complete the following survey and fax it back to 952.703.7022. Or, if you prefer, you may complete the survey online at ExcavationSafetyOnline.com/esg.

Thank you.

How important is safety and the culture of safety within your organization? (Check one)

- Very important
- Somewhat important
- Not a priority
- Not important at all

The articles in this publication are designed to provide expert analysis on a variety of subjects regarding excavation safety. How useful are the articles? (Check one)

- Insightful and useful information
- Somewhat useful information
- Factual but little useful information
- Not at all useful information

Do you find the resource information to be helpful? Rank the following on a scale of 1 to 4 with 4 being very helpful.

 Overall, is the information provided in this directory helpful to you and your co-workers? Rank on a scale of 1 to 4 with 4 being very helpful.

1  2  3  4

Do you utilize the pull-out poster and post it in your place of work?

- Yes
- No

Is this publication something that you keep with you and refer to all year long?

- Yes
- No

How can we make this a more useful tool for you in the future?

__________________________________________________
__________________________________________________
__________________________________________________
__________________________________________________

Your Name ________________________________
Your Email address (if you wish to receive a FREE subscription to Damage Prevention Professional)
__________________________________________________

We’d like to thank you for participating in our survey.

You will receive a FREE subscription to Damage Prevention Professional magazine upon completing this survey. Once we receive your survey, we will send you a web link and a subscription code.

Again, thank you for your feedback.
Excavation Safety University
Training Video Series!

The Excavation Safety University Video Series is designed to provide viewers with industry best practices on utility damage prevention and excavation safety. Videos are a great training tool and an economical way to train your staff.

**Damage Investigation: Field Investigation Techniques**
Investigate damages well and win your case! Valuable information created by seasoned damage investigators and claims attorneys.

**Locating Best Practices**
Focused on providing a comprehensive overview of the industry’s best practices for locating. A great overview for someone who is new to locating or someone who needs to understand the locating process.

**Basic Locating Theory**
Explains how and why electromagnetic locating works in terms the layman can understand. Covered topics include the transmitter and receiver as well as signal frequency and methods of connection.

**Basic Locating Skills**
Expands on the information provided in the “Basic Locating Theory” video, offering practical tips on how to get the most out of your locating set in field applications. Topics include basic troubleshooting and recognizing signal distortion.

Order yours today and start training your staff tomorrow!
For more detailed information or to place an order, call 866-279-7755 or visit www.ExcavationSafetyOnline.com/eso_videos.php

Bookmark ExcavationSafetyOnline.com today on your computer!
Recommended Minimum Evacuation Distances for Natural Gas Pipeline Leaks and Ruptures
(Not applicable for Butane, Propane or other Hazardous Liquids)

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**EVACUATION DISTANCE IN FEET**

The applicable leak or rupture condition is that of a sustained trench fire fueled by non-toxic natural gas escaping from two full bore pipe ends. Blast overpressure is not addressed. The distances shown in Table 1 are intended to provide protection from burn injury and correspond to a thermal heat flux exposure level of 450 Btu/hr ft². This is the accepted limit of heat exposure for unprotected outdoor areas where people congregate; as established by the US Department of Housing & Urban Development Code 24CFR51, Subpart C, Siting of HUD Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature. The formula used to calculate distance was taken from the Gas Research Institute Report GRI-00/0189, A Model for Sizing High Consequence Areas Associated with Natural Gas Pipelines, 2001, prepared by C-FER Technologies. That model does not take into account wind or other factors which may greatly influence specific conditions. Users are advised that the distances shown in Table 1 are considered to be “general information” only and are not intended to replace a site specific risk analysis. The Pipeline Association for Public Awareness makes no warranty with respect to the usefulness of this information and assumes no liability for any and all damages resulting from its use. Anyone using this information does so at their own risk.
## Emergency & Non-Emergency Pipeline Operator Contact Information

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

<table>
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<th>EMERGENCY</th>
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<tr>
<td>Aera Energy, LLC</td>
<td>(800) 247-5877</td>
<td>(661) 685-5149</td>
<td><a href="http://www.aeraenergy.com">www.aeraenergy.com</a></td>
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<tr>
<td>Aka Energy Group, LLC</td>
<td>(800) 737-2831</td>
<td>(970) 764-6555</td>
<td><a href="http://www.akaenergy.com">www.akaenergy.com</a></td>
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<tr>
<td>Alliance Pipeline L.P.</td>
<td>(800) 944-3183</td>
<td>(970) 764-6555</td>
<td><a href="http://www.alliance-pipeline.com">www.alliance-pipeline.com</a></td>
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<tr>
<td>Alliant Energy - IPL</td>
<td>(800) 255-4268</td>
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<tr>
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<tr>
<td>Anadarko Midstream</td>
<td>(307) 882-5106</td>
<td>(307) 882-2675</td>
<td>anadarko.com</td>
</tr>
<tr>
<td>Anadarko Petroleum</td>
<td>(307) 437-9500</td>
<td>(307) 233-4523</td>
<td>anadarko.com</td>
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<tr>
<td>Archer Daniels Midland Company (ADM)</td>
<td>(713) 621-9547</td>
<td>(713) 621-9547</td>
<td><a href="http://www.adtn.com">www.adtn.com</a></td>
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<tr>
<td>Bear Paw Energy, LLC</td>
<td>(800) 778-7834</td>
<td>(800) 778-7831</td>
<td><a href="http://www.oneokpartners.com">www.oneokpartners.com</a></td>
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<tr>
<td>Bear Paw Energy, LLC - Wyoming</td>
<td>(966) 575-6465</td>
<td>(307) 878-3103</td>
<td><a href="http://www.oneokpartners.com">www.oneokpartners.com</a></td>
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<tr>
<td>Beartooth Pipeline</td>
<td>(866) 305-3741</td>
<td>(307) 746-4417</td>
<td>truecos.com</td>
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<td>Belle Fourche Pipeline Co</td>
<td>(866) 305-3741</td>
<td>(307) 746-4417</td>
<td>truecos.com</td>
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<td>Bitter Creek Pipeline - CO</td>
<td>(888) 859-7291</td>
<td>(713) 621-9547</td>
<td><a href="http://www.copanoenergy.com">www.copanoenergy.com</a></td>
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<td>Black Hills Energy</td>
<td>(800) 694-8989</td>
<td>(888) 890-5554</td>
<td>blackhillsenergy.com</td>
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<td>Black Hills Power, Inc.</td>
<td>(605) 721-2289</td>
<td>(605) 721-2297</td>
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<td>BP America Production</td>
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<td>Cascade Natural Gas</td>
<td>(888) 522-1130</td>
<td>(888) 522-1130</td>
<td><a href="http://www.cnrg.com">www.cnrg.com</a></td>
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<td>Cenex Pipeline LLC</td>
<td>(800) 421-4122</td>
<td>(406) 628-5293</td>
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<td>Central Resources, Inc.</td>
<td>(661) 765-7783</td>
<td>(661) 765-2191</td>
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<td>Chevron Pipe Line Company</td>
<td>(877) 596-2811</td>
<td>(970) 675-2133</td>
<td><a href="http://www.centralresources.com">www.centralresources.com</a></td>
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<td>Cheyenne Light, Fuel &amp; Power</td>
<td>(800) 246-1109</td>
<td>(307) 778-2145</td>
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<td>Cimmaron Gathering, LLC</td>
<td>(866) 254-4373</td>
<td>(713) 621-9547</td>
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<td>City of Redding</td>
<td>(530) 245-7009</td>
<td>(661) 549-8518</td>
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<td>City of Sioux Falls</td>
<td>(605) 941-2351</td>
<td>(605) 367-8162</td>
<td><a href="http://www.siouxfalls.org">www.siouxfalls.org</a></td>
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<td>Colorado Interstate Gas Company (CIG)</td>
<td>(877) 712-2288</td>
<td>(713) 420-2600</td>
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<td>Colorado Natural Gas</td>
<td>(800) 723-8193</td>
<td>(303) 979-7680</td>
<td>coloradonaturalgas.com</td>
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<td>Colorado Springs Utilities</td>
<td>(719) 448-4800</td>
<td>(719) 688-5426</td>
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<td>ConocoPhillips - Northwest NM</td>
<td>(800) 688-0158</td>
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<td>Copano Energy</td>
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<td>CPN Pipeline Company</td>
<td>(877) 432-5555</td>
<td>(707) 374-1505</td>
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<td>Crooks Municipal Utilities</td>
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<td>(605) 543-5238</td>
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<td>Dakota Gasification Company</td>
<td>(866) 747-3546</td>
<td>(701) 873-6773</td>
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<td>DCP Midstream, LLC</td>
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<td>(303) 605-1992</td>
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<td>Devon Energy Production Company LP</td>
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<td>(307) 856-8111</td>
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<td>Dick Brown Technical Services</td>
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<td>(661) 549-8518</td>
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<td>El Paso Natural Gas (EPNG)</td>
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<td>(713) 420-2600</td>
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<td>Enbridge Energy</td>
<td>(800) 858-5253</td>
<td>(218) 759-6712</td>
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<td>Enbridge Pipelines (North Dakota) LLC</td>
<td>(888) 838-4545</td>
<td>(701) 857-0806</td>
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<td>EnCana Oil &amp; Gas (USA) Inc.</td>
<td>(877) 386-2200</td>
<td>(720) 876-5248</td>
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<td>Energy Operations Management Inc.</td>
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<td>(916) 859-4700</td>
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<td>Energy West - Montana</td>
<td>(800) 570-5688</td>
<td>(406) 791-7500</td>
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<td>Enterprise Products - Mid America Pipeline</td>
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<td>(307) 362-2703</td>
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<td>Express Pipeline LLC</td>
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<td>(307) 233-6196</td>
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<td>ExxonMobil Pipeline Co - Montana</td>
<td>(800) 537-5200</td>
<td>(406) 657-5400</td>
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<td>ExxonMobil Production</td>
<td>(307) 276-6000</td>
<td>(307) 276-6242</td>
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<td>FMC Corporation</td>
<td>(800) 875-5650</td>
<td>(307) 872-2131</td>
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<td>Fort Union Gas Gathering</td>
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<td>Fountain Valley Power LLC</td>
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<td>(719) 382-5885</td>
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<td>Front Range Pipeline LLC</td>
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<td>(406) 629-5293</td>
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<td>Frontier Pipeline Company</td>
<td>(866) 780-7677</td>
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<td>Garretson Natural Gas</td>
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<td>Great Lakes Gas Transmission (GLGT)</td>
<td>(800) 447-8066</td>
<td>(307) 233-6196</td>
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<td>Great Plains Natural Gas Company</td>
<td>(877) 267-4764</td>
<td>(701) 222-7900</td>
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<td>Havre Pipeline Company LLC</td>
<td>(406) 357-2333</td>
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<td>Hawthorn Oil Transportation (N. Dakota), Inc.</td>
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<td>Humboldt Municipal Gas Utility</td>
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<td>Inergy Services</td>
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<td>Intermountain Gas Company</td>
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<td>Kern River Gas Transmission Company</td>
<td>(800) 272-4817</td>
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<td>Key Pipeline</td>
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<td>Kinder Morgan Interstate Gas Transmission</td>
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<td>Koch Pipeline - Northern Operations</td>
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<td>(612) 670-2588</td>
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<td>Koch Pipeline - Southeast Texas</td>
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<td>Koch Pipeline - Southern Operations</td>
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<td>(361) 242-5518</td>
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<td>Linn Operating Inc.</td>
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<td>(713) 458-8719</td>
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<td>Lost Creek Gathering LLC</td>
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<td>Magellan Midstream Partners, L.P.</td>
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<td>Marathon Pipeline Company</td>
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<td>Merit Energy Company</td>
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<td>(307) 682-9710</td>
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<td>MidAmerican Energy Company</td>
<td>(800) 595-5325</td>
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<td>MidAmerican Energy Company - IL</td>
<td>(800) 595-5325</td>
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<td>MIGC</td>
<td>(307) 682-9710</td>
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<td>Montana Dakota Utilities Company</td>
<td>(800) 638-3278</td>
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<td>(406) 781-3093</td>
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<td>Mountain Gas Resources, Inc.</td>
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<td>(307) 875-8785</td>
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<td>N. G. Transmission</td>
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<td>Northern Border Pipeline Company</td>
<td>(800) 447-8066</td>
<td>(563) 289-3338</td>
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<td>Northern California Power Agency</td>
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<td>(661) 549-8518</td>
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<td>Northern Natural Gas Company</td>
<td>(888) 367-6671</td>
<td>(402) 530-3835</td>
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<td>NorthWestern Energy - MT</td>
<td>(888) 467-2427</td>
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<td>NorthWestern Energy - NE and SD</td>
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<td>(406) 497-2446</td>
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<td>NuStar Logistics, L.P.</td>
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<td>NuStar Pipeline Operating Partnership L.P.</td>
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<td>Ominex Canada, Ltd.</td>
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<td>ONEOK NGL Pipeline, LLC</td>
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<td>Pacific Energy Resources Ltd.</td>
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<td>Pacific Gas and Electric Company</td>
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<td>Pacific Operators Offshore</td>
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<td>Pecan Pipeline (North Dakota) Inc.</td>
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<td>Petro - Hunt, LLC</td>
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<td>Pineville Natural Gas, Inc.</td>
<td>(307) 367-4427</td>
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<td>Pioneer Natural Resources</td>
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<td>Pioneer Pipe Line Company</td>
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<td>Plains Exp. &amp; Prod. (PXP) Los Angeles</td>
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<td>Plains Exp. &amp; Prod. (PXP) Santa Barbara</td>
<td>(805) 739-9111</td>
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<td>Platte Pipe Line</td>
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<td>Platte River Power Authority</td>
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<td>Portland Natural Gas Transmission System</td>
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<td>Questar Gas</td>
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<td>Red Cedar Gathering Company</td>
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<td>(970) 208-1266</td>
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<td>San Diego Gas &amp; Electric</td>
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<td>(408) 423-6550</td>
<td>(661) 549-8518</td>
<td><a href="http://www.siliconvalleypower.com">www.siliconvalleypower.com</a></td>
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<tr>
<td>Sinclair Pipeline Company</td>
<td>(800) 321-3994</td>
<td>(307) 323-3643</td>
<td><a href="http://www.sinclairoil.com/pipelines.htm">www.sinclairoil.com/pipelines.htm</a></td>
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<td>SourceGas Distribution</td>
<td>(800) 563-0012</td>
<td>(303) 243-3541</td>
<td><a href="http://www.sourcegas.com">www.sourcegas.com</a></td>
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<tr>
<td>SourceGas Transmission</td>
<td>(866) 477-1190</td>
<td>(303) 243-3541</td>
<td><a href="http://www.sourcegas.com">www.sourcegas.com</a></td>
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<tr>
<td>South Dakota Intrastate Pipeline Co.</td>
<td>(800) 852-0949</td>
<td>(605) 224-0949</td>
<td><a href="http://www.sdipco.com">www.sdipco.com</a></td>
</tr>
<tr>
<td>Southern Dome, LLC</td>
<td>(800) 782-8686</td>
<td>(713) 621-9547</td>
<td><a href="http://www.socalgas.com">www.socalgas.com</a></td>
</tr>
<tr>
<td>Southern Natural Gas (SNG)</td>
<td>(800) 252-5960</td>
<td>(713) 420-2600</td>
<td>premier.sonetpremier.com/snghome</td>
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<tr>
<td>Southern Star Central Gas Pipeline</td>
<td>(800) 324-9696</td>
<td>(307) 328-8400</td>
<td><a href="http://www.sscgp.com">www.sscgp.com</a></td>
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<td>St. Mary Land &amp; Exploration Co.</td>
<td>(406) 208-3563</td>
<td>(406) 869-8706</td>
<td><a href="http://www.stmaryland.com">www.stmaryland.com</a></td>
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<td>Suncor Energy (U.S.A.) Pipeline Company</td>
<td>(866) 978-6257</td>
<td>(303) 793-8006</td>
<td><a href="http://www.suncor.com">www.suncor.com</a></td>
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<td>Tennessee Gas Pipeline (TGP)</td>
<td>(800) 231-2800</td>
<td>(713) 420-2600</td>
<td><a href="http://www.tennesseeadvantage.com">www.tennesseeadvantage.com</a></td>
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<td>Tesoro Alaska Pipeline Company</td>
<td>(907) 776-3549</td>
<td>(907) 776-3520</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>Tesoro Hawaii Corporation</td>
<td>(808) 682-3991</td>
<td>(808) 479-0527</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<td>Tesoro High Plains Pipeline Company</td>
<td>(866) 283-7676</td>
<td>(701) 225-8973</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>Tesoro Refining - Northern California</td>
<td>(925) 372-3120</td>
<td>(925) 335-3452</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>Tesoro Refining - Southern California</td>
<td>(310) 522-6000</td>
<td>(310) 522-8602</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>Tesoro Refining and Marketing - Utah</td>
<td>(801) 521-4900</td>
<td>(801) 521-4987</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>Thunder Creek Gas Services, LLC</td>
<td>(877) 619-4680</td>
<td>(307) 687-0614</td>
<td><a href="http://www.tscorp.com">www.tscorp.com</a></td>
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<tr>
<td>TransCanada - ANR Pipeline (ANR)</td>
<td>(800) 447-8066</td>
<td>(248) 205-4521</td>
<td><a href="http://www.anrpl.com">www.anrpl.com</a></td>
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<tr>
<td>TransCanada - Bison Pipeline Company</td>
<td>(800) 447-8066</td>
<td>(605) 226-2259</td>
<td><a href="http://www.bisonpipeline.com">www.bisonpipeline.com</a></td>
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<tr>
<td>TransCanada - Gas Transmission Northwest</td>
<td>(800) 447-8066</td>
<td>(514) 548-9243</td>
<td><a href="http://www.gastransmissionnw.com">www.gastransmissionnw.com</a></td>
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<tr>
<td>TransCanada - Keystone Pipelines L.P.</td>
<td>(800) 447-8066</td>
<td>(402) 492-7454</td>
<td><a href="http://www.transcanada.com">www.transcanada.com</a></td>
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<tr>
<td>TransCanada - North Baja Pipeline</td>
<td>(800) 447-8066</td>
<td>(514) 548-9243</td>
<td><a href="http://www.northbajapipeline.com">www.northbajapipeline.com</a></td>
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<tr>
<td>TransColorado Gas Transmission Co. LLC</td>
<td>(800) 944-4817</td>
<td>(970) 208-1266</td>
<td><a href="http://www.kindermorgan.com/public_aware">www.kindermorgan.com/public_aware</a></td>
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<tr>
<td>Tuscarora Gas Transmission</td>
<td>(800) 447-8066</td>
<td>(514) 548-9243</td>
<td><a href="http://www.gastransmissionnw.com">www.gastransmissionnw.com</a></td>
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<tr>
<td>Venoco Inc.</td>
<td>(888) 836-6261</td>
<td>(805) 745-2150</td>
<td><a href="http://www.venocoinc.com">www.venocoinc.com</a></td>
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<tr>
<td>Viking Gas Transmission Company</td>
<td>(888) 417-6275</td>
<td>(216) 379-3160</td>
<td><a href="http://www.vgt.nborders.com">www.vgt.nborders.com</a></td>
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<td>Vintage Production California, LLC</td>
<td>(866) 746-4293</td>
<td>(661) 869-8072</td>
<td><a href="http://www.oxo.com">www.oxo.com</a></td>
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<td>Walden Gas</td>
<td>(970) 723-4662</td>
<td>(970) 929-9206</td>
<td><a href="http://www.pinedalegas.com">www.pinedalegas.com</a></td>
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<td>Watertown Municipal Utilities</td>
<td>(800) 882-6233</td>
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<td><a href="http://www.watertownmunicipalutilities.com">www.watertownmunicipalutilities.com</a></td>
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<td>White Cliffs Pipeline</td>
<td>(800) 522-3883</td>
<td>(405) 692-5132</td>
<td><a href="http://www.sengrouplp.com">www.sengrouplp.com</a></td>
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<td>Whiting Oil and Gas Corporation - ND</td>
<td>(800) 733-4608</td>
<td>(701) 227-8703</td>
<td><a href="http://www.whiting.com">www.whiting.com</a></td>
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<tr>
<td>Whiting Oil and Gas Corporation - WY</td>
<td>(800) 713-3401</td>
<td>(303) 390-4957</td>
<td><a href="http://www.whiting.com">www.whiting.com</a></td>
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<td>Wild Goose Storage, LLC</td>
<td>(866) 940-7351</td>
<td>(530) 846-7351</td>
<td><a href="http://www.niskags.com">www.niskags.com</a></td>
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<td>Williams Midstream - Colorado</td>
<td>(800) 635-7400</td>
<td>(505) 634-4954</td>
<td><a href="http://www.williams.com">www.williams.com</a></td>
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<td>Williams Midstream - Wyoming</td>
<td>(800) 635-7400</td>
<td>(307) 872-2839</td>
<td><a href="http://www.williams.com">www.williams.com</a></td>
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<td>Williams Northwest Pipeline - Kemmerer Dist.</td>
<td>(800) 972-7733</td>
<td>(307) 872-4061</td>
<td><a href="http://www.williams.com">www.williams.com</a></td>
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<td>Williams Northwest Pipeline - Moab District</td>
<td>(800) 972-7733</td>
<td>(435) 686-2214</td>
<td><a href="http://www.williams.com">www.williams.com</a></td>
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<td>Williams Northwest Pipeline - Vernal District</td>
<td>(800) 972-7733</td>
<td>(435) 781-3200</td>
<td><a href="http://www.williams.com">www.williams.com</a></td>
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<td>Williston Basin Interstate Pipeline</td>
<td>(888) 858-7291</td>
<td>(406) 359-7316</td>
<td><a href="http://www.wbip.com">www.wbip.com</a></td>
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<td>Wyoming Gas Company</td>
<td>(307) 347-2416</td>
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<td>Wyoming Refining Company</td>
<td>(307) 746-4931</td>
<td>(307) 746-2379</td>
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<td>Xcel Energy, NSP - MN - Gas Distribution</td>
<td>(800) 895-2999</td>
<td>(800) 895-4999</td>
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<td>Xcel Energy, PSCO - Gas Distribution</td>
<td>(800) 895-2999</td>
<td>(800) 895-4999</td>
<td><a href="http://www.xcelenergy.com">www.xcelenergy.com</a></td>
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<tr>
<td>Xcel Energy, PSCO - Gas Transmission</td>
<td>(800) 698-7811</td>
<td>(800) 895-4999</td>
<td><a href="http://www.xcelenergy.com">www.xcelenergy.com</a></td>
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<tr>
<td>ZIA Natural Gas Company - Central NM</td>
<td>(800) 520-4277</td>
<td>(800) 520-4277</td>
<td><a href="http://www.zngc.com">www.zngc.com</a></td>
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<tr>
<td>ZIA Natural Gas Company - Hobbs, NM</td>
<td>(575) 392-4277</td>
<td>(800) 520-4277</td>
<td><a href="http://www.zngc.com">www.zngc.com</a></td>
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<tr>
<td>ZIA Natural Gas Company - Jal, NM</td>
<td>(575) 395-2080</td>
<td>(800) 520-4277</td>
<td><a href="http://www.zngc.com">www.zngc.com</a></td>
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<tr>
<td>ZIA Natural Gas Company - Northeast NM</td>
<td>(575) 375-2277</td>
<td>(800) 520-4277</td>
<td><a href="http://www.zngc.com">www.zngc.com</a></td>
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Federal Laws and Regulations Concerning Underground Facilities

Title 49, Transportation, Subtitle VIII, Pipelines, Chapter 601, Safety § 60123. Criminal Penalties
(a) General penalty. A person knowingly and willfully violating section 60114(b), 60118(a), or 60128 of this title or a regulation prescribed or order issued under this chapter [49 USCS §§ 60101 et seq.] shall be fined under title 18, imprisoned for not more than 5 years, or both.

(b) Penalty for damaging or destroying facility. A person knowingly and willfully damaging or destroying an interstate gas pipeline facility, an interstate hazardous liquid pipeline facility, or either an intrastate gas pipeline facility or intrastate hazardous liquid pipeline facility that is used in interstate or foreign commerce or in any activity affecting interstate or foreign commerce, or attempting or conspiring to do such an act, shall be fined under title 18, imprisoned for not more than 20 years, or both, and, if death results to any person, shall be imprisoned for any term of years or for life.

(c) Penalty for damaging or destroying sign. A person knowingly and willfully defacing, damaging, removing, or destroying a pipeline sign or right-of-way marker required by a law or regulation of the United States shall be fined under title 18, imprisoned for not more than one year, or both.

(d) Penalty for not using one-call notification system or not heeding location information or markings. A person shall be fined under title 18, imprisoned for not more than 5 years, or both, if the person:
   (1) knowingly and willfully engages in an excavation activity
      (A) without first using an available one-call notification system to establish the location of underground facilities in the excavation area; or
      (B) without paying attention to appropriate location information or markings the operator of a pipeline facility establishes; and
   (2) subsequently damages
      (A) a pipeline facility that results in death, serious bodily harm, or actual damage to property of more than $50,000;
      (B) a pipeline facility, and knows or has reason to know of the damage, but does not report the damage promptly to the operator of the pipeline facility and to other appropriate authorities; or
      (C) a hazardous liquid pipeline facility that results in the release of more than 50 barrels of product.

Penalties under this subsection may be reduced in the case of a violation that is promptly reported by the violator.

OSHA Regulations, 1926.651, Specific Excavation Requirements

At www.osha.gov, under compliance assistance programs, you can get to publications and print out “Working Safely in Trenches” (OSHA 3243), which contains great safety tips in both English and Spanish. Injury rate and fatality statistics can be found at www.bls.gov.

1926.651(b) Underground installations
   (1) The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.
   (2) Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the underground utility installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.
   (3) When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.
   (4) While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

   (1) knowingly and willfully engages in an excavation activity
      (A) without first using an available one-call notification system to establish the location of underground facilities in the excavation area; or
      (B) without paying attention to appropriate location information or markings the operator of a pipeline facility establishes; and
   (2) subsequently damages
      (A) a pipeline facility that results in death, serious bodily harm, or actual damage to property of more than $50,000;
      (B) a pipeline facility, and knows or has reason to know of the damage, but does not report the damage promptly to the operator of the pipeline facility and to other appropriate authorities; or
      (C) a hazardous liquid pipeline facility that results in the release of more than 50 barrels of product.
Would like to thank the following members for their continued support:

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Aka Energy Group, LLC
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Alliant Energy
Anadarko
Amerada Midland Company (ADM)
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Beartooth Pipeline
Belle Fourche Pipeline Co
Bitter Creek Pipeline
Black Hills Energy
Black Hills Power, Inc.
BP America Production
Bridger Pipeline LLC
Butte Pipe Line Company
Cascade Natural Gas
Cenex Pipeline, LLC
Central Resources, Inc.
Cheyenne Pipe Line Company
Cheyenne Light, Fuel & Power
Cimarron Gathering, LLC
City of Redding
City of Sioux Falls
Colorado Interstate Gas Company (CIG)
Colorado Natural Gas
Colorado Springs Utilities
ConocoPhillips
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Crook Municipal Utilities
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Enterprise - Jonah Gas Gathering
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Mountain Gas Resources, Inc.
N. G. Transmission
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Northern California Power Agency
Northern Natural Gas Company
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NuStar Pipeline Operating Partnership L.P.
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ONEOK NGL Pipeline, L.L.C.
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Platte River Power Authority
Portland Natural Gas Transmission System
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Questar Pipeline Company
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Rosetta Resources
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Williams Northwest Pipeline
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Wyoming Refining Company
Xcel Energy

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For more information, contact us at info@pipelineawareness.org

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While supplies last. See website for details.