



THE HANDBOOK FOR EXCAVATORS

THINGS YOU NEED TO KNOW BEFORE,
DURING AND AFTER YOU DIG IN THE VICINITY
OF A NATURAL GAS PIPELINE.



DEAR EXCAVATOR:

SCE&G is committed to reducing dig-ins on its electric and natural gas systems. Each dig-in exposes excavators to costs ranging from lost time and repair costs to property damages and personal injuries.

The U.S. Department of Transportation recognizes the hazards of excavating around natural gas pipelines. As such, the Office of Pipeline Safety, in the Federal Pipeline Safety Regulations (49 CFR 192.614), requires that SCE&G and all operators of natural gas pipelines identify persons or entities who normally engage in excavation activities around natural gas pipelines. They further require that SCE&G inform the identified parties of our damage prevention programs to prevent dig-ins and how we can mutually assist one another to this end.

Your firm has been identified as an excavator who normally engages in excavation activities in areas around SCE&G's gas pipelines. Therefore, we have enclosed a copy of our Handbook for Excavators for your review. We ask that you review this booklet and call if you have any questions.

We look forward to working safely with you in the future.

Sincerely,



Martin K. Phalen
Vice President, Gas Operations

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INTRODUCTION

Think Smart Before You Start

Study this booklet before you dig.

The information will help you understand our natural gas facilities and specific practices that must be followed around them. It will also help you protect the general public, your employees and ours.

This handbook does not replace state and federal regulations. For a full explanation of your responsibilities, you should consult the Underground Utility Damage Protection Act for the State of South Carolina found in South Carolina Code of Laws Chapter 35 of Title 58 (Section 58.35.10-58.35.120).

SECTION ONE

Background Information You Should Know

South Carolina Electric and Gas Company (SCE&G) is on call 24 hours a day to serve you. We supply natural gas to approximately 301,000 residential, commercial and industrial customers in a service area of more than 22,000 square miles in central and southern South Carolina.

Our representatives are available for all emergencies and non-emergencies at our toll free number **1-800-815-0083**.

Facts About Natural Gas And Its Unusual Odor

Natural gas is lighter than air and rises quickly in outside areas.

When gas escapes into a confined area, it follows the path of least resistance, which is along other underground installations such as sewer, electric or telephone facilities.

Natural gas is odorless; however, an odorant is added that gives the gas a distinctive smell. This helps us readily detect a gas leak.

Natural gas can ignite if released. Ignition can be caused by flint sparks, matches and sparks from electrical switches or motors.

If you suspect a natural gas leak because you smell gas or hear a hissing sound, clear the area and call SCE&G and 911 immediately.

SECTION TWO

Guidelines for Excavators

1. **The Law:** *The Underground Utility Damage Prevention Act for the State of South Carolina*

At least 72 hours before you begin work, the Palmetto Utility Protection Service (PUPS) must be notified by calling 811 or 1-888-721-7877. Making this call enables SCE&G and other utilities to mark their facilities. Do not work under another company's locate request.

IMPORTANT: Failure to contact PUPS is a violation of state law and may result in a fine.

2. Planning

Proper planning for construction activities can result in a smoother running project. Before starting to bid the job, you should visit the site with these specifications in mind:

- Traffic
- Nearness to structures
- Soil conditions
- Surfaces and groundwater
- Water table levels
- Weather and seasonal conditions

You should also consider overhead and underground utilities. If the excavation is large and/or deep, consult the utility early in the planning process so they can work with you to prevent problems. Utilize white lining when excavation locations are either difficult to describe or cannot be clearly described.

3. Review Before You Begin

Before beginning the job, review the project with your employees. Each job is unique due to different field conditions. Your employees should recognize the hazards and the safety precautions they must take.

Make sure all employees are trained to operate the specific equipment they will be using. Also make sure they understand the contents of this booklet. Notify PUPS or SCE&G if facilities have not been marked within the 72 hour time period.

4. Providing Adequate Supervision

Make sure that you have a representative on the site with proof that PUPS was notified of the job. The job must be supervised at all times when working around SCE&G's natural gas facilities. It is the supervisor's responsibility to insure that:

- all personnel have been trained and are following approved construction practices.
- prompt action is taken if there is any contact with a gas facility.
- equipment is operated properly.
- necessary communication is maintained with SCE&G

5. Facility Markings

Once SCE&G is notified by PUPS, we will locate and mark our natural gas facilities. These will be identified by the presence of yellow paint, chalk, flags, stakes, brushes, etc.

You are responsible for maintaining the utility facilities markings. Don't cover or remove surface markings or stakes indicating underground facilities during construction activities.

6. "Give Us A Hand" Around The Buried Facilities

Excavators must HAND DIG AROUND KNOWN BURIED GAS FACILITIES. The law requires the excavator to dig a test hole to verify the location of the underground gas facilities. You must use proper excavating techniques, including shoring, if required to prevent undermining of facilities or trench collapse. In addition, all OSHA regulations must be followed.

7. Protect Exposed Facilities

Notify SCE&G when gas facilities are exposed. Whenever required, you must provide temporary and permanent support for our facilities. This support includes—but is not limited to—shoring, temporary bridging and suspension supports, as well as proper backfilling under and around facilities. SCE&G can suggest methods for the design of support facilities.

8. Don't Go Beyond The Limits Without Telling Us

If construction requires you to excavate outside the previously agreed upon area or deeper than you had planned, don't go further without notifying SCE&G immediately. Do not allow a ticket to expire if construction activity will extend beyond the life of the ticket. Recall prior to the expiration data according to PUPS instructions.

9. Blasting

If blasting is required, make sure we know so special precautions can be taken. SCE&G representatives may be required on-site to monitor blasting activities and perform surveys for leaks before and after the blast.

10. We'll Help You Find Our Facilities

Sometimes utility facilities aren't found where they're marked. If that's the case you should notify us immediately. We will assist you on-site.

11. Unidentified Facilities

If you find a facility that has not been identified or marked, stop work and notify us immediately. Notify us at once if you make contact with an SCE&G facility. The damage at the point of contact may appear slight or unnoticeable but may have placed stress on the facility, damaged protective coatings or caused damage elsewhere in the facility.

12. Escaping Gas

If you smell gas, hear a hissing sound or suspect that gas is escaping, clear the area and notify SCE&G and 911 immediately.

13. Backfill

After the excavation is completed and installation of your facilities is finished, the excavation must be properly backfilled. The backfill soil must be free from rocks, asphalt, concrete or other material that could eventually come in contact with the gas piping and cause damage.

Backfill material must be suitable material, placed in lifts and compacted to insure a stable trench. Compaction rates of 95 percent should be achieved to help insure stability of the trench. Soil movement caused by substandard backfill material, poor backfilling practices, or failure to install supports can lead to damage of gas facilities. You will be responsible for these damages.

SECTION THREE

Making Your Project Run Smoother

Locating And Marking Facilities

Our location service will mark gas facilities after proper notification from PUPS. **PLEASE NOTE** that the location is approximate (within two-and-a-half feet each side of the mark). Since the depth of facilities cannot be accurately determined, we cannot provide depth information.

Before Excavating

If you have questions, we will meet with you to fully explain the requirements for protecting gas facilities and the safety of your employees and the general public.

During Excavation

SCE&G is always ready to help. We will work with you in resolving any problem which may arise.

Site Inspection

SCE&G employees may inspect the construction area at any time. We must make sure that you are performing the work in a manner that does not damage the gas facilities or affect the health and safety of your employees and the public we serve.

If we see that you are not adequately protecting our facilities, we will take immediate action – even if it requires that the proper enforcement agency close down the project.

Keep The Loads Off Us

Superimposed loads in the area of a trench or excavation can cause increased pressure on excavation faces. Heavy equipment and materials (including pipe or timbers) should be stored well outside the excavation area. Additionally, spoil must be stored a minimum of two feet or more from the edge of the excavation walls and retained in a manner that prevents seepage into the excavation.

Vibration Can Be Quite A Shock

Anything that causes a vibration can lead to soil stability problems. Vibration or sudden shock from passing vehicles and blasting or pounding from equipment such as pile drivers can contribute to trench wall collapse or loosening of the soil.

Look Out For Others

Other contractors in the vicinity can affect your operation, so be aware of other projects around you.

SECTION FOUR

The Main Materials Behind SCE&G's Natural Gas Distribution

SCE&G distributes natural gas through pipes called mains that generally run along streets and rights-of-way. Mains can be as small as inch in diameter or as large as 16 inches in diameter. Smaller pipes, called services carry the gas from the main to the customer.

Our mains and services are usually made of either steel or plastic, and are designed to meet all federal and state requirements. However, construction or excavation work can sometimes cause damage to these mains and services, which can pose a potential danger to you and the public we serve.

Damage to steel or plastic pipe may present different problems:

Plastic Pipe

Softer than steel pipe, plastic pipe is more susceptible to damage from puncture or scratching. Since plastic pipe is nonmetallic, a tracer wire is installed to make locating the pipeline easier. If this wire is cut or damaged, it must be repaired in order to maintain the ability to effectively locate buried plastic pipe.

Steel

A protective coating on the outside of the steel pipe is designed to prevent corrosion.

While steel pipe is the most resistant to damage, unrepaired damage to the coating such as nicks or scrapes, may result in corrosion and deterioration of the pipe over time, ultimately creating a leak. Additionally, denting, gouging or kinking of the pipe may result in a future stress failure.

SECTION FIVE

Gas Emergencies

If natural gas is escaping, emergencies can involve several basic situations:

- Gas escaping inside
- Gas escaping outside
- Gas burning outside

Steps To Take When Gas Is Escaping Inside A Building

Inside leaks are the most serious. Gas escaping into a building from either an inside or outside source can build up and cause a fire or explosion.

When a gas facility is damaged, sometimes the greatest amount of damage occurs someplace other than at the point of contact, such as an underground connection or the end of the facility inside a building.

Damage to a facility may allow gas to escape along such underground structures as pipes, utility lines or sewer lines that run directly into a building.

Steps To Take When Gas Is Escaping Outside

Natural gas escaping outside from an excavation or from an open pipe will generally rise into the air. Make sure you:

1. Shut down all machinery.
2. Clear a safe area around the site.
3. Remove all sources of ignition including smoking materials and open flames.
4. Call SCE&G and 911.
5. Do not attempt to repair a leak by trying to stop the flow of gas. Don't bend or attempt to plug a broken or leaking pipe.

What Steps To Take If Gas Is Burning Outside

Once gas is burning outside it will not explode; however, you should:

1. Shut down all machinery.
2. Clear a safe area around the site.
3. Call SCE&G and 911.
4. Do not try to extinguish the fire. Spraying water on burning natural gas will fill the area around the leak with mud and water, which will make it more difficult for gas service crews to locate and repair the damage. Make sure that surrounding materials do not catch fire.

What To Do:

If you make contact with any gas service or other gas facility near a building, immediately:

1. Notify the building occupants to be aware of unusual noises or odors.
2. Evacuate the building immediately if a gas odor is detected.
3. Call SCE&G from outside the building.

SECTION SIX

Eight Steps To A Smoother Excavation

1. **Plan.** Make sure you plan for facility conflicts, which can arise as part of underground construction.
2. **Call 811.** Notify the Palmetto Utility Protection Service (PUPS) at 811 at least 72 hours before beginning the job.
3. **Train and supervise.** There should be complete training and full supervision on the job site to make sure that safe construction practices are always followed.
4. **Maintain the markings.** You must properly maintain all underground utility markings.
5. **Dig by hand.** Hand dig in the area of underground facilities.
6. **Protecting.** It's your job to provide protection and support for gas facilities. SCE&G will assist you in planning for these requirements.
7. **Call SCE&G immediately if damage occurs.** If a gas facility is damaged—no matter how slight—it is your responsibility to call SCE&G so we can make repairs immediately. If the damage results in a leak or the possibility of escaping gas, you must also call 911.
8. **Backfill properly.** Use and properly install suitable backfill material around all facilities.