



UO Guideline G14413

ISSUING DEPARTMENTS: **GD&TS and GSM&TS**

EFFECTIVE DATE: **11-00**

UO SPONSORS: **Director - GD&TS and
Director - GSM&TS**

REVIEW DATE: **11-02**

PAGE NO.: **1** OF **7**

TITLE: Procedure for Excavating Pipelines and Services

Purpose Provide direction to employees to protect underground facilities when excavating with power-operated equipment near gas transmission or gas distribution pipelines.

This guideline supports Utility Operations Standard S4412, "Protection of Underground Infrastructure" and the Gas System Maintenance and Technical Support (GSM&TS) policy memo, "Local Transmission Standby Policy."

Safety Immediately notify the owner or operator of any underground facility if there is any damage to their facility. Immediately notify the local emergency response number or 911 if damage results in a release of natural gas or other hazardous substances that potentially endanger life, health or property.

Implementation Responsibilities

- Director of GSM&TS or a designated representative
- Operations, Maintenance and Construction (OM&C) superintendents

Scope These requirements apply to Utility Operations (UO) employees and others excavating over gas distribution and gas transmission facilities. The preferred method of locating gas distribution and gas transmission facilities is by hand; however, the use of power-operated equipment in conjunction with hand digging and probing is allowed only if mutually agreeable with the OM&C superintendent or the GSM&TS district superintendent or designated representative and the excavator. Caution must be continuously observed to avoid damage to buried facilities and to ensure a safe work environment.

The directors of GD&TS and GSM&TS are authorized to modify these detailed procedures, forms or instructions, as needed, or to approve variances from this procedure on an exception basis.

Rescission Recommended Practice 4412.2, Revision 2, "Procedure for Excavating Pipelines," dated March 1, 1999.

Contact Gas Engineering & Planning (GE&P) – Senior Gas Distribution Engineer (223-0500)

Definition of Terms

Appropriate Probe

Any slender, flexible device used to investigate an unknown configuration or depth.

Approximate Location of Subsurface Installations

A strip of land not more than 24 inches on either side of the exterior surface of the UG infrastructure. "Approximate location" does not include depth measurements.

Company

Pacific Gas and Electric Company, its contractors and authorized representatives.

Encased Pipeline

A natural gas pipeline or service that is located within or encapsulated by slurry, concrete or other cementitious materials.

Pipeline

Any natural gas-carrying pipe to include service lines.

Power-Operated Equipment

Excavating equipment powered by any means other than by hand, typically by use of a backhoe.

Probing

A method of physically locating buried gas facilities before using power-operated equipment.

Qualified Person

An individual, who by reason of experience and instruction, is familiar with the operation to be performed and hazards involved.


Date Issued/Updated

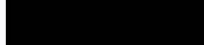
Effective: November 2000

Review Date: November 2002

Signed,

Signed,


Director
Gas Distribution and Technical Services


Director
Gas System Maintenance and Technical Support

- Reference Documents**
- UO Standard S4412, "Protection of Underground Infrastructure"
 - UO Standard D-S0353, "Physical Inspection of Pipelines, Main and Services"
 - UO Standard D-S0444, "Excavation Safety"
 - UO Standard D-S0350/S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities"
 - UO Guideline G14412, "Site Delineation and Mark and Locate Surface Marking"
 - Code of Safe Practices*
 - Excavation Safety Manual*
 - GSM&TS Policy Memo "Local Transmission Standby Policy," dated 1/18/00

Attachment 1 – Procedures

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|---|---|
| Form A | 1. A “Leak Survey, Repair, Inspection and Gas Quarterly Incident Report,” Form No. 62-4060 (Form A), must be completed for all buried pipelines that are exposed. Follow the requirements of UO Standard D-S0353. |
| Notifications | 2. Before excavating, verify the presence of all Company and third-party substructures. Notifications by the person performing the excavation must be made to: <ul style="list-style-type: none"> • the Underground Service Alert (USA) • the owner/operator of any identified underground facility or known operator not notified by USA • the property owner or tenant if on private property or in an easement, or the tenant alone if on a fee strip (Company-owned property) |
| Acceptable Use of Power Operated Equipment | 3. The preferred method of physically locating gas distribution and gas transmission pipelines is by hand; however, the use of power-operated equipment to assist with hand digging and probing may be allowed if mutually agreeable with the OM&C superintendent or the GSM&TS district superintendent or designated representative, and the excavator. Caution must be observed continuously to avoid damage to buried facilities and to ensure a safe work environment. <p style="margin-left: 40px;">The GSM&TS Local Transmission Stand-by Policy shall be followed when excavating over CGT-owned pipelines. This policy provides consistent guidelines and direction for providing standby services for gas transmission lines. Consult the GSM&TS local transmission superintendent for guidance.</p> <p style="margin-left: 40px;">The use of vacuum excavation equipment should be given consideration as an alternative to using power-operated equipment.</p> |
| Approval to Use Power Operated Equipment | 4. For other than intracompany excavations, a Company observer shall verify that the GSM&TS district superintendent, OM&C superintendent or their designated representative and the excavator have mutually agreed to allow the use of power-operated equipment in addition to hand digging and probing when locating the pipeline. <p style="margin-left: 40px;">5. For intracompany purposes, these written or verbal agreements may be made on an annual basis. Follow the requirements listed in UO Standard S4412.</p> |

Locating the Pipeline

- 6. Locate the pipeline as accurately as possible by means of a Company-approved pipe locator. Follow the requirements of UO Guideline G14412. If the pipeline is suspected to be 5 feet deep or greater or in unstable soil, be prepared to slope, bench or shore the excavation per UO Standard D-S0444.
- 7. The use of power-operated equipment may be used to remove pavement if there are no facilities contained within the pavement.
- 8. Excavation within the approximate location of the pipeline must be first effected by hand excavation, or by a combination of hand, careful probing, and mechanical means, following the procedures specified in Steps 8 through 12. This applies to excavations by contractors and UO personnel.

Personnel must use caution and must carefully hand dig where direct-buried electric cables are present or may be present. The use of probes to locate direct buried electric facilities is not permitted. Extreme care must be exercised when using an appropriate probe to locate gas facilities or electric facilities installed in conduit. The use of field impact or slide probes is limited to locating steel gas facilities.

- 9. Probe to a depth of approximately 24 inches at spacing no greater than 5 inches. This probing is to be done at right angles to the pipeline for the full width of the proposed daylighting excavation. If the ground condition does not permit probing, then a trench approximately 18 inches deep must be hand dug, using a shovel, for the full width of the proposed daylighting excavation.
- 10. If it is determined that the depth of the pipeline is greater than the depth of the initial probing or hand excavation, as described in Step 8, then excavation by power-operated equipment will be permitted to a depth 12 inches less than the actual probing depth or the hand dug trench depth achieved in Step 8.
- 11. After the initial excavation by power-operated equipment has been made, a trench 18 inches in depth must be hand dug across the full width of this excavation. If the pipeline is not exposed in this 18 inches of hand excavation, then another 6 inches may be removed with the power-operated equipment.

Probing may be substituted for the hand-dug trench until the excavation is within 12 inches of the pipe (provided, soil conditions permit accurate probing). This method will ensure a 12-inch separation at all times between the power-operated equipment and the pipeline.

Locating the Pipeline
(continued)

12. This 18 inches of hand excavation and another 6 inches of cover may be removed with power-operated equipment. Probing may be substituted for the hand-dug trench until the excavation is within 12 inches of the pipe (provided that soil conditions permit accurate probing). This method will ensure a 12-inch separation at all times.
13. This same procedure of alternately digging 18 inches by hand, or probing if soil conditions permit, and then excavating by power-operated equipment at 6 inches intervals, must be continued until the excavation is within 12 inches of the pipeline.

Extreme care must be taken during this procedure to ensure that the hand-dug trench or probing operation is wide enough to allow for the cutting made by the corner teeth on a backhoe bucket or other equipment, in the event that the excavation machinery is not positioned directly over the main. In all cases the remaining 12 inches of cover must be removed by hand using a shovel.

14. After the top of the pipe has been cleaned off by hand excavating, the sides of the pipe must be accurately located. Maintain a safe distance (i.e., approximately 12 inches) between the side of the pipeline and backhoe bucket or other power-operated equipment.
15. Once the top and the sides of the pipeline have been located, the excavation will continue, using extreme caution at all times to not have the power-operated equipment come in contact with the pipeline.
16. When the pipeline is uncovered, adequate protection must be provided. Inspect the exposed facilities and complete the Form A.
17. Do not allow rocks or other debris to come into contact with the pipeline.
18. The procedures listed above do not preclude the use of additional precautions as deemed necessary for the particular job in progress.

Accessing Encased Pipelines

19. Only qualified workers shall be allowed to break out encased pipelines.
20. The procedure to remove encased pipelines shall be performed using pneumatic hand tools or traditional hand tools.
21. Precautions and extreme care shall be taken to avoid damage to the pipeline. Do not use pneumatic tools immediately over service tees or fittings. Maintain a 3-inch separation between pneumatic tools and fittings and tees, wherever practicable.

22. Tailboards will be held to discuss possible hazards and procedures.
23. In all cases, before beginning any procedure to remove the materials encasing the pipeline, the immediate location will be monitored for gas leakage. In the event that gas is detected, no attempt to remove the casing must be made until the gas flow is contained.
24. Personal protective equipment as described in the *Code of Safe Practices* shall be used where or when applicable.

**Damage
Assessment**

25. Any damage found during the inspection process must be reported using the "Leak Survey, Repair, Inspection and Quarterly Incident Report (Form A)."
26. For Gas Transmission pipelines, any damage (gouges, corrosion or damage to pipe wrap) found must be measured and reported. An ultrasonic thickness tester and pit gauge should be available during all excavations. The ultrasonic thickness tester should be used to measure the general wall thickness around the damage. The pit gauge should be used to measure the depth of the damaged area. This data must be entered on the Form A.

Gas Control shall be notified of any damage before backfilling. Gas Control will notify the GSM&TS local pipeline engineer or on-call engineer. Do not backfill any excavation until approval by the local GSM&TS engineer.

27. For Gas Distribution pipelines, any damage (gouges, corrosion or other damage) found must be repaired per GS&S, A-65 or A-93.1. Damaged pipe wrap must be repaired or replaced before backfilling. All applicable information must be reported on the Form A.