

**Memorandum**

Date: February 17, 1999 File #:  
To: VARIOUS  
From: GAS SYSTEM MAINTENANCE & TECHNICAL SUPPORT  
Subject: RP 4412.2, "Procedure for Excavating Pipelines"



***Pacific Gas and  
Electric Company***



GSM&TS DISTRICT SUPERINTENDENTS  
GSM&TS PIPELINE ENGINEERS

Attached for your use is CGT Recommended Practice RP 4412.2, "Procedure for Excavating Pipelines." It replaces CGT Interim Practice IP 4412.2 which was issued in September 1998.

RP 4412.2 refines procedures originally issued in the interim practice. The procedures in RP 4412.2 should be followed when excavating to locate a pipeline. As stated in the variance to S 4412 dated 9/24/98, the use of a backhoe in combination with probing or hand digging to locate a pipeline is allowed **only** when mutually agreed upon ahead of time by the District Superintendent (or designated representative) and the excavator. RP 4412.2 provides specific procedures to ensure that this is done safely.

RP 4412.2 will be published in the April 1999 update to the *CGT Standards* book; however, we wanted to distribute it now to those who would have an immediate use for, or interest in, this document. It is also available on-line through the "G.S. Info System."

Please call me at 583-4312 or [REDACTED] if you have any questions about the standard.

*Susan Chwistek*  
SUSAN CHWISTEK



Attachment

[REDACTED]  
February 17, 1999  
Page 2

cc: [REDACTED]  
[REDACTED]  
[REDACTED]  
Eric Kirkpatrick (w/attach)  
[REDACTED]  
[REDACTED]



# Recommended Practice

Issuing Department: GAS SYSTEM MAINTENANCE & TECHNICAL SUPPORT  
Manager: [REDACTED]

Effective Date: 3/1/1999  
Review Date: 3/1/2001

**SUBJECT: Procedure for Excavating Pipelines**

**Objective**

Provide direction to employees to protect underground facilities when excavating near the pipeline.

This standard supports DCS/GTS Standard D-S0402/S4412, "Protection of Underground Infrastructure" and the GSM&TS "Stand-by Policy."

**Scope**

These requirements apply to GSM&TS employees and others excavating in company easements or right of way to locate a CGT pipeline.

**Rescission**

Interim Practice IP 4412.2 "Procedure for Excavating Pipeline with Power-Operated Equipment," dated 9/15/98.

**Originator**

Gas System Maintenance & Technical Support - System Integrity

**Business Risk**

Non compliance with the requirements of this recommended practice could result in damage to the pipeline, jeopardizing employee and/or public safety and system reliability.

**Responsibility For Implementation**

Manager of GSM&TS or designated representative

**Contact for Further Information**

[REDACTED] System Integrity

**References**

GSM&TS "Stand-by Policy," dated 5/1/97

DCS/GTS Standard D-S0214/S4412, "Protection of Underground Infrastructures"

DCS Guideline C-D-G1000, "Site Delineation and Mark & Locate Surface Marking"

Code of Safe Practices

**Approvals and Authorizations**

[REDACTED] 2/5/99  
[REDACTED] Date

**Recommended Practice**

**Subject: Procedure for Excavating Pipelines**

Number: RP 4412.2

Revision: 1

Effective Date: 3/1/1999

Review Date: 3/1/2001

**PROCEDURE**

**Form A**

1. A "Leak Survey, Repair, Inspection and Gas Quarterly Incident Report," form No. 62-4060 (Form A), must be completed for all pipe excavations.

**Notifications**

2. Prior to excavating, verify the presence of all company and third-party substructures. Notifications must be made to:
  - a. Underground Service Alert (USA),
  - b. the Owner/Operator of any identified underground substructures,
  - c. the property owner or tenant.

**Approval to Use Power Operated Equipment**

3. Verify that the District Superintendent or 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. The use of power-operated equipment to assist with hand digging and probing is allowed only if mutually agreeable with the District Superintendent, or designated representative, and the excavator. Follow the GSM&TS Stand-by Policy.

**Damage Assessment**

4. Any damage (gouges or corrosion pitting) to the pipe must be measured. An ultrasonic thickness tester and a pit gauge should be available during all excavations. The ultrasonic thickness tester should be used to measure the general wall thickness around the damaged area. The pit gauge should be used to measure the depth of damaged area. This data must be entered on the "Leak Survey, Repair, Inspection, and Gas Quarterly Incident Report" form (Form A). GSM&TS Pipeline Engineering must be notified of any damage prior to backfilling.

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**Locating the Pipeline**

5. Locate the pipeline as accurately as possible by means of a pipe locator. If the pipeline is suspected to be greater than 5 feet deep or in unstable soil, be prepared to step or shore the excavation.
  
6. Excavation within the approximate location of the pipeline (24 inches from the outside of the facilities as indicated by the mark) must be first exposed by hand excavation, or by a combination of hand, careful probing, and mechanical means, following the procedures specified in steps 7 through 11. This applies to excavations by contractors, DCS, as well as those being done by GSM&TS personnel. *Field personnel must use caution and hand dig only where underground electric cables are present, or may be present. The use of probes around underground electric facilities is not permitted.*
  
7. Probe to a depth of approximately 24 inches at spacings 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.
  
8. If it is determined that the pipe is deeper than the depth of the initial probing or hand excavation, as described in step 7, then excavation by backhoe will be permitted to a depth 12 inches less than the actual probing depth or the hand dug trench depth achieved in step 7.
  
9. After the initial excavation by backhoe 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 backhoe. 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 between pipeline and backhoe bucket at all times.

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**Locating the Pipeline (cont.)**

10. This same procedure of alternately digging by hand 18 inches, or probing if soil conditions permit, and then excavating by backhoe 6 inches, 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 the bucket in the event that the backhoe is not positioned directly over the main.* In all cases the remaining 12 inches of cover must be removed by hand shovel.

11. After the top of the pipe has been cleaned off by hand excavating, the sides of the pipe must be accurately located keeping a safe distance (approximately 6 inches) between the side of the pipe and the backhoe bucket.

**Excavating the Pipeline**

12. 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 backhoe bucket come in contact with the pipeline.

13. When the pipeline is uncovered, adequate protection must be provided for the pipe.

14. The procedures listed above do not preclude the use of additional precautions as deemed necessary for the particular job in progress.