



ISSUING DEPARTMENT: **GD&TS**

EFFECTIVE DATE: **4-1-99**

DCS SPONSOR: **Manager, GD&TS**

REVIEW DATE: **4-1-04**

PAGE NO.: **1** OF **4**

TITLE: Leak Survey Auditing

- Purpose** This guideline describes the recommended practices to review the adequacy of leak survey procedures, as required by DCS/GTS Standard D-S0350/S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities."
- Guideline Sponsor** The manager of Gas Distribution and Technical Services (GD&TS) department is responsible for authorizing, approving and revising this guideline.
- Implementation Responsibilities** This guideline is to be implemented by including it in the *Gas Distribution Maintenance Manual* and distributing this guideline to all managers responsible for gas distribution system gas leak surveys (area OM&C managers). The leak survey supervisor is responsible to implement the procedures contained in this guideline.
- Contacts** Gas Distribution and Technical Services Department -- Senior Gas Engineer (223-8180)
- General** General procedures are described starting on Page 3. Two attachments accompany this guideline.
- Definition of Terms** **Leak Survey:** A search for possible gas leakage in any area where PG&E gas facilities exist, or where a gas leak is reported or suspected.

Date Issued/Updated

Effective: **April 1, 1999**

Review Date: **April 1, 2004**

Signed,

Robert Gross
Manager
Gas Distribution & Technical Services

Reference Documents

- 49 CFR 191, Sections 1, 7, 23 and 25
- 49 CFR 192, Sections 605, 703, 706, 709, 711, 717 and 723.
- CPUC General Order 112-E, section 143.1.
- DCS Policy 3-7, "Gas and Electric Maintenance and Operation"
- DCS Standard D-S0350/GTS Standard S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities"
- GS&S M-53.2, "Portable Hydrogen Flame Ionization Gas Detector"
- GS&S M-53.3, "Calibration of Portable Combustible Gas Detectors"
- D-G0054, "Leak Survey Training"
- PG&E Leak Survey and Repair Manual*

Detailed Procedures

I. General

Ensuring the quality of PG&E's gas leak survey is an important objective for the safe and efficient operation of the gas distribution system. The procedures contained herein are not mandatory. They do reflect best practices for ensuring a quality leak survey that have been gathered from around the PG&E system.

Before a local supervisor starts the leak survey auditing program, he/she should be qualified to perform the leak surveys him/herself or ensure there will be an experienced auditor to conduct the program.

In addition, leak survey supervisors should announce the leak survey auditing program to the surveyors prior to actually implementing the program. The announcement should include the start dates of the auditing program, the frequencies, scope and the auditing methods to be used. If the supervisor is using this guideline as the basis of his/her audit program, the supervisor should hand this out to all leak surveyors to allow them to review and understand the audit program.

II. Types, Frequency, and Method of Leak Survey Auditing

A. New Leak Surveyor Audit: Each new leak surveyor who has been trained on the leak survey should be audited within one week of starting to perform leak survey duties. The audit procedures will involve the leak survey supervisor walking with the new leak surveyor to verify readings taken and procedures performed by the new leak surveyor.

As a best practice, it is suggested that the area to be walked on a new leak surveyor audit be an area that has already been surveyed by an existing experienced leak surveyor, so that the new leak surveyor audit can be conducted at the same time as an existing leak surveyor audit is being conducted.

The supervisor should obtain a two fresh copies of the map(s) of the area to be leak surveyed in the audit. One map will be for the new leak surveyor; the other for the leak survey supervisor (auditor). The supervisor will walk the same area as the new leak surveyor and each will record results on his/her separate plat sheets. After completing the walk-through, the supervisor should compare findings by completing Attachment A. Periodically the supervisor and the surveyor should stop to compare notes on their findings.

Attachment B should also be completed. The supervisor should review the new leak surveyor's techniques. The auditor/supervisor should review the leak surveyor's knowledge of the leak survey standard and other job aids. The supervisor should also observe the leak surveyor's ability to perform calibration checks on the instruments and fill out all necessary documentation. Safety procedures shall also be observed, specifically for:

1. conducting the foot survey,
2. use and care of the leak survey instruments,
3. vehicle use, and

4. wearing safety equipment.

B. Existing Leak Surveyor: Existing leak surveyors should have their leak survey work audited at least once every two years on a random, unannounced basis.

To conduct this audit, the auditor should obtain a copy of the map of the area that the leak surveyor surveyed the day before the audit. The auditor should then conduct a leak survey of that area, recording results on the blank map. After the survey is completed, the auditor should then pull the copy of the existing leak surveyor's map to compare notes and complete Attachment A.

A recent sampling of the auditor's paperwork should be reviewed to ensure proper documentation. It is suggested that the auditor meet with the leak surveyor to ensure any discrepancies are understood and the existing leak surveyor is aware of current leak survey standards, procedures and forms.

C. Follow-up Audits: Follow-up audits should be performed within two months of any leak survey audit that indicates a significant need for performance improvements, as determined by the leak survey supervisor.

III. Leak Survey Audit Scope

It is important to audit a leak surveyor's work within a week (the next day is preferred) of the leak survey and before any significant change in the weather or ground conditions (e.g., rain, freezing weather, flooding, earthquakes, etc.).

IV. Recordkeeping

All audit reports completed as part of this guideline should be filed within the appropriate leak surveyor's file and kept until two subsequent reviews have been completed.

ATTACHMENT "A"
LEAK SURVEYOR AUDIT REPORT

LEAK SURVEYOR: _____ OFFICE: _____

THE MAIN AND SERVICES WHICH ARE COLOR CODED ON THE ATTACHED PLAT SHEET (ORIGINALLY SURVEYED ON _____ BY THE ABOVE SURVEYOR) WERE RESURVEYED ON _____ BY _____ OF _____.

THE FOLLOWING RESULTS WERE OBTAINED:

	<u>NUMBER FOUND ON RESURVEY</u>	<u>NUMBER FOUND ON ORIGINAL SURVEY</u> (TO BE FILLED IN AFTER RESURVEY)
GRADE 1 LEAKS	_____	_____
GRADE 2 LEAKS	_____	_____
GRADE 3 LEAKS	_____	_____

EVALUATION OF RESULTS BY LEAK SURVEY SUPERVISOR
COMPARISON OF LEAK INDICATION

CHECK ONE:

	SATISFACTORY	NOT SATISFACTORY
1) READINGS	<input type="checkbox"/>	<input type="checkbox"/>
2) LOCATIONS	<input type="checkbox"/>	<input type="checkbox"/>
3) GRADING	<input type="checkbox"/>	<input type="checkbox"/>
BASED ON THIS EVALUATION, THE SURVEYOR'S FIELD PERFORMANCE IS: (IF NOT SATISFACTORY, INDICATE ACTION TAKEN)	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: _____

LEAK SURVEY AUDITOR _____ DATE _____

EVALUATION OF RECORDS AND REPORTS:

CHECK ONE:

	SATISFACTORY	NOT SATISFACTORY
1) SURVEY MAP	<input type="checkbox"/>	<input type="checkbox"/>
2) SURVEY LOG	<input type="checkbox"/>	<input type="checkbox"/>
3) LEAK REPAIR FORM	<input type="checkbox"/>	<input type="checkbox"/>
4) METER TAGS	<input type="checkbox"/>	<input type="checkbox"/>
5) CGI CARDS	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: _____

LEAK SURVEY AUDITOR _____ DATE _____

ATTACHMENT "B"

LEAK SURVEYOR AUDIT PROCEDURE

SURVEYOR _____

OFFICE _____

EVALUATION BY _____

DATE _____

	EXCELLENT	GOOD	SATIS FACTORY	NEEDS IMPROVEMENT
1. Safety practices				
a. conducting the foot survey				
b. use and care of the leak survey instruments				
c. vehicle use				
d. wearing safety equipment				
2. Comprehends leak survey standard				
a. leak grading				
b. leak response				
c. documentation				
d. leak actions				
e. leak follow-up				
3. Survey techniques				
a. Checks cracks in pavement, manholes, water meter boxes, and other surface openings.				
b. Samples atmosphere in basements and crawl spaces in wall-to-wall paving areas.				
c. Samples casing vent openings.				
d. Services				
e. Meter Sets				
f. "Checks" of unrepaired leaks and "rechecks" of repaired leaks.				
g. Quantity of work.				
4. Grading of leak indications				
5. Paperwork				
a. Survey map and log				
b. Weekly log				
c. Meter tags				
d. Leak repair forms				
e. CGI cards				
6. Care of equipment				
7. Equipment calibration procedures				
a. procedures				
b. documentation				

Remarks: