



*UO Standard S4111*

ISSUING DEPARTMENT: **GSM&TS**  
T&D SPONSOR: **VP - E&P**  
CGT SPONSOR: **VP - CGT**

EFFECTIVE DATE: **05-03**  
REVIEW DATE: **05-08**  
PAGE NO.: **1** OF **3**

**TITLE: Patrolling Pipelines and Mains**

**Purpose** This standard establishes a uniform procedure for patrolling Pacific Gas and Electric Company (Company) gas facilities in order to comply with the requirements of 49 CFR 192.605 (b), 49 CFR 192.705, and 49 CFR 192.721.

**Recision** This standard supersedes Gas Information Bulletin No. 138, "Transmission Patrolling Requirements," dated 02-01-01, and UO Standard S4111, "Patrolling Pipelines and Mains," dated 8-00.

**Safety** Public safety is increased by performing the required gas facility patrols and observing surface conditions that could lead to failure or leakage of gas facilities.

**Implementation Responsibilities** The vice president of Engineering and Planning (E&P) and the vice president of California Gas Transmission (CGT) are responsible for approving, revising, and distributing this standard.

Utility Operations (UO) directors are responsible for implementing this standard within their respective organizations.

Responsibility for patrolling Company gas facilities shall rest with the operating department supervisor and the district superintendent who direct the maintenance and operation of these facilities. Performance responsibilities include determining specific scope and any special considerations, scheduling and assigning patrolling frequency, reviewing and maintaining patrol records, and initiating action to correct conditions found during patrols.

The responsibility for maintaining patrol records shall rest with the Operations, Maintenance and Construction (OM&C) department and the district superintendents in CGT.

The director of Gas System Maintenance & Technical Support or Gas Distribution and Technical Services shall update and reissue the procedures, attachments, and forms attached to this standard.

**Compliance**

Responsible superintendents and supervisors measure the implementation and effectiveness of this standard. In addition, internal Company departments can conduct periodic audits. The CPUC also conducts compliance audits on the requirements of this standard. Patrol reports revealing the need for corrective actions will be reviewed and acted upon by responsible superintendents and supervisors.

**Definition of Terms**

**Class Location:** The density of buildings as defined in CFR 192.5.

**CPUC:** California Public Utilities Commission.

**DOT:** Department of Transportation.

**DFM:** Distribution feeder man.

**Distribution Line:** A pipeline that serves as a common source of supply for more than two service lines.

**Gathering Line:** A pipeline that transports gas from a current production facility to a transmission line or main. This term shall include collection lines taking gas from wells.

**SMYS:** Specified minimum yield strength.

**Transmission Line:**

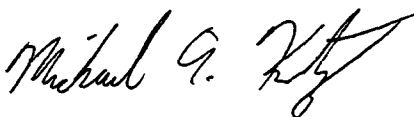
- All numbered transmission lines.
- All DFMs or portions of DFMs that operate over 20% SMYS.
- All pipelines directly connected to gas gathering lines.
- All pipelines within a gas storage field.
- All pipelines fed by a storage field.

**Date Issued/Updated**

*Effective:* May 2003

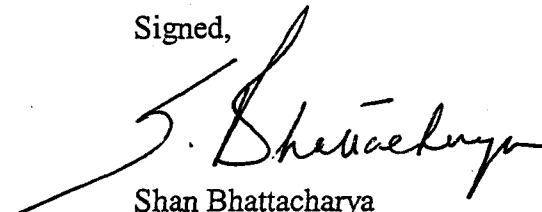
*Review Date:* May 2008

Signed,



Michael A. Katz  
Vice President  
California Gas Transmission

Signed,



Shan Bhattacharya  
Vice President  
Engineering and Planning

**Contacts**

For additional information, please contact the Gas Engineering and Planning section of the Gas Distribution and Technical Services Department (223-8180 or 415-973-8180) or the System Integrity section of the GSM&TS department (583-4313 or 925-974-4313).

**Attachment / Exhibits**

Attachment 1, "Procedure for Patrolling Pipelines and Mains"

Exhibit A, "Pipeline Patrol Report" (Form F4111-A)

**Note:** Form F4111b is no longer being used.

Exhibit C, "Exposed Piping and Spans Form" (F4111-C)

Exhibit D, "Landslide Form" (F4111-D)

**Reference Documents**

49 CFR Part 190 and 192.705, 721

CPUC General Order 112E

CGT Standard 4127, "Class Location Determination, Compliance and Maintenance"

Gas Standards O-16, "Corrosion Control of Gas Facilities"

UO Standard D-S0350/S4110, "Leak Survey and Repair of Gas Transmission and Distribution Facilities"

UO Standard S4122, "Gas Pipeline Markers"

UO Standard S4133, "Corrosion Control of Gas Transmission Facilities"

**Attachment 1 – Procedure for Patrolling Pipelines and Mains**

**1. Facilities to Be Patrolled**

The following facilities are to be patrolled:

- All gathering lines.
- All transmission lines.
- Any distribution lines and DFMs operating at  $\leq 20\%$  SMYS in places or on structures where anticipated physical movement or external loading could cause leakage or failure.
- Any other gas pipeline facility requiring special attention as conditions warrant.

**2. Points to Observe and Report**

Any conditions found during the patrol that require immediate attention and cannot be corrected by the patrol shall be reported to the responsible supervisor or superintendent as soon as possible.

Some general points to observe and report are as follows:

- Landslides or threatened slides.
- Erosion by streams, wave action, rain, etc.
- Land subsidence that could affect the pipeline or main.
- Construction or maintenance work being performed by others along the pipeline (within 220 yards on either side) or encroachments on the right-of-way.
- Evidence of gas leakage, as indicated by vegetation, bubbles in surface water, odor, readings, etc.
- Signs of severe seismic displacement (fault zones).
- Damage to Company-owned facilities.
- Damage to highway structures and other facilities not owned by the Company where public safety is a factor.
- Presence of survey parties or other indications of possible future work within 220 yards on either side of the pipeline, which might jeopardize Company-owned facilities or cause a change in its class location.
- Evidence of atmospheric corrosion on aboveground piping.
- Access roads that may not be in a passable condition.
- Any other factors affecting the operation or safety of the pipeline.

**3. Patrolling Methods**

- All patrols may be made by aerial observation or ground observation. Aerial patrols shall be supplemented by ground patrols whenever any of the points listed in Section 2 cannot be adequately observed by aerial patrol.
- Ground patrols may be performed in conjunction with other work as long as the necessary functions of patrolling, including reporting, are accomplished.
- Routine aerial patrols of transmission lines shall be coordinated with the System Integrity section in CGT/GSM&TS. Other special aerial patrols (e.g., helicopter) are coordinated by the local offices (GSM&TS district and OM&C area offices).

**4. Periodic Reviews**

- Pipelines that are patrolled shall be reviewed by the local offices and updated as required.
- Patrol methods for each pipeline shall be reviewed by the local offices and updated as required.
- The Aerial Patrol Program that is administered by the CGT/GSM&TS department shall be reviewed and updated as required.

**5. Frequency**

Frequencies shown in the table below for patrolling are the **minimum** required. More frequent patrols may be scheduled (i.e., daily, weekly, monthly) by the operating department as local conditions warrant. Facilities shall be patrolled as deemed prudent or necessary during or after heavy rainstorms or extended rainfall, earthquakes, and other natural disasters in those areas where damage is likely to occur.

**Table 1 – Minimum Patrol Frequencies**

	Quarterly (Note 1)	Semiannually	Annually	Acceptable Methods
<b>All Transmission Lines and Gathering Lines</b>	X (Note 4)			Aerial and/or ground (Note 2 and 3)
<b>All Distribution Lines</b> in places or on structures where anticipated physical movement or external loading could cause failure or leakage and the consequent hazards to public safety.				Aerial and/or ground (Note 3)
<b>A. In business districts</b>	X			
<b>B. Outside business districts</b>		X		

**Notes to Table 1**

**Note 1** Frequencies are defined as follows:

Quarterly = At least four times each calendar year, not to exceed 4½ months.
Semiannually = At least twice each calendar year, not to exceed 7½ months.
Annually = At least once each calendar year, not to exceed 15 months.

**Note 2** Most of the transmission lines >20% SMYS are preferred to be patrolled by air patrol. However, if it is not practical to patrol by air (i.e., heavy foliage over a pipeline, air space restrictions, etc.), then the patrols shall take place by ground patrol.

**Note 3** Aerial patrols shall be supplemented by ground patrols if the points listed in the “Points to Observe” section of this standard cannot be adequately observed by aerial patrol.

**Note 4** A special variance allowing semiannual patrols can be requested for transmission lines in Class 1 and 2 areas that can only be patrolled by ground, and air patrol is not possible. Contact GSM&TS System Integrity at [REDACTED]

## 6. Documentation

All patrols shall be documented using the appropriate form(s) listed below. All completed patrol reports shall be kept at the district or OM&C area offices. At a minimum, the files for transmission pipelines shall be kept for 5 years, and the files for distribution mains shall be kept for 3 years.

### A. Aerial Patrol

An **Aerial Patrol Report** is used to document the aerial patrols and is completed by the pilot. The report form is specific to the area patrolled and is customized by GSM&TS for the pilots' use. Completed Aerial Patrol Reports will be sent to each location. The Aerial Patrol Program is administered by GSM&TS and documented in the Aerial Patrol Binder.

### B. Ground Patrol

The "Pipeline Patrol Report" (F4111-A) is used for foot or truck patrols.

### C. Special Inspections

- 1) **Spans.** The "Exposed Piping and Spans" form (F4111-C) is used when exposed piping and spans are to be inspected at least annually for transmission lines. For distribution lines, the exposed piping or spans are inspected at a minimum with the same frequency as other patrols (i.e., leak survey, corrosion, etc.).
- 2) **Landslides.** The "Landslide Area" form (F4111-D) is used *only* if slide conditions exist. These conditions are patrolled quarterly, at a minimum.