

Gas System Operations Control Room Management

SUMMARY

This utility standard establishes requirements that ensure compliance with the control room management (CRM) rule issued under [Code of Federal Regulations \(CFR\) Title 49: Transportation, Part 192—Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards, Subpart L—Operations, Section \(§\) 192.631, “Control room management.”](#) This standard is the primary pipeline safety compliance tool for all CRM activities required by the applicable federal and state pipeline safety regulations for both transmission and distribution (T&D) gas control room operations.

The Gas Control T&D procedures governed by this standard are as follows:

- [TD-4436P-01, “Gas System Operations CRM – Information Management”](#)
- [TD-4436P-02, “Gas System Operations CRM – Personnel Fatigue Mitigation”](#)
- [TD-4436P-03, “Gas System Operations CRM – Alarm Management”](#)
- [TD-4436P-04, “Gas System Operations CRM – Management of Pipeline Changes”](#)
- [TD-4436P-05, “Gas System Operations CRM – Evaluating Operational Experiences”](#)
- [TD-4436P-06, “Gas System Operations CRM – Gas Transmission and Gas Distribution Training Programs”](#)

This standard and its associated procedures and supporting referenced documents are included in the *GTCC Control Room Management Operations Manual* for the gas transmission control center (GTCC), and the *GDCC Control Room Management Operations Manual* for the gas distribution control center (GDCC).

TARGET AUDIENCE

The primary audience for this utility standard includes the following gas control room personnel working in the GTCC and GDCC, respectively:

- Gas control center managers, or delegate(s), and gas system supervisors responsible for managing and supervising gas control room personnel
- In the GTCC: Senior transmission coordinators, transmission coordinators, and gas system operators responsible for monitoring and remote operations of gas transmission facilities
- In the GDCC: Senior distribution coordinators, distribution coordinators, and gas system operators responsible for monitoring and remote operations of gas distribution facilities

Gas System Operations Control Room Management

- Gas control strategy and support personnel responsible for managing and maintaining the supervisory control and data acquisition (SCADA) system, including associated procedures, plans, and processes supporting the *CRM Manual* sections “Alarm Management” and “Management of Pipeline Change”

The secondary audience for this utility standard includes personnel in gas T&D construction, gas T&D operations, and gas engineering whose responsibilities are outlined in the procedures governed by this utility standard.

This utility standard does not apply to control room personnel at manned stations who exclusively operate station equipment within station boundaries because they are not considered to be remotely monitoring and controlling a pipeline. See [Attachment 9, “Gas Control Room Separation.”](#) for further clarification.

A summary of the roles and responsibilities for affected personnel is provided in the following attachments:

Transmission:

- [Attachment 1, “Gas Control Personnel Roles and Responsibilities”](#)
- [Attachment 2, “Responsibilities for Management Personnel in Gas Control to Support the CRM Plan”](#)
- [Attachment 3, “Responsibilities of Personnel Outside Gas Control Supporting the CRM Plan”](#)

Distribution:

- [Attachment 6, “Distribution Gas Control Personnel Roles and Responsibilities”](#)
- [Attachment 7, “Responsibilities for Management Personnel in the Gas Distribution Control Center Supporting the CRM Plan”](#)
- [Attachment 8, “Responsibilities of Personnel Outside the Gas Distribution Control Center Supporting the CRM Plan”](#)

Common Attachment(s) to T&D: [Attachment 9, “Gas Control Room Separation.”](#)

The utility procedures governed by this utility standard describe the roles and responsibilities associated with specific tasks.

SAFETY

1. Failure to follow this utility standard could result in unsafe pipeline operations, and pose a risk to public safety and personnel in the event of equipment failure.

Gas System Operations Control Room Management

TABLE OF CONTENTS

SUBSECTION	TITLE	PAGE
1	Overview	3
2	49 CFR §192.631 (c), "Provide Adequate Information"	4
3	49 CFR §192.631 (d), "Fatigue Mitigation"	4
4	49 CFR §192.631 (e), "Alarm Management"	5
5	49 CFR §192.631 (f), "Change Management"	5
6	49 CFR §192.631 (g), "Operating Experience"	6
7	49 CFR §192.631 (h), "Training"	6
8	49 CFR §192.631 (i) and (j), "Compliance Validation and Deviation"	7
9	Audits and Compliance Reviews	7
10	Recordkeeping	7

REQUIREMENTS

1 Overview

- 1.1 The implementing utility procedures described below in Sections 2 through 7 and supporting documents provide the tools for gas control room personnel to effectively manage activities associated with safe operation of Pacific Gas and Electric (Company or PG&E) gas T&D systems. These documents are contained in the *Control Room Management Operations Manuals* (see the controlled versions identified in Section 1.2 below for manual contents).
- 1.2 Each gas control manager, or delegate, must ensure that copies of the *GTCC Control Room Management Operations Manual* or the *GDCC Control Room Management Operations Manual* are kept in the following locations:
 - *Gas Transmission Control Center* (hard copy)
 - *Gas Distribution Control Center* (hard copy)
 - *Alternate Gas Control - Transmission* (hard copy)
 - *Alternate Gas Control – Distribution* (hard copy)

Gas System Operations Control Room Management

- [The Gas Control \(Transmission\) SharePoint site](#)
- [The Gas Control \(Distribution\) SharePoint Site](#)
- *Intermediate Gas Control Center - Transmission (hard copy)*
- *Intermediate Gas Control Center - Distribution (hard copy)*

1.3 This utility standard, along with its attachments, satisfies [49 CFR §192.631\(a\)](#), “General,” and (b), “Roles and responsibilities.” The implementing procedures described in Sections 2 through 8 below address compliance with the remaining sections of [49 CFR §192.631, “Control room management.”](#)

2 49 CFR §192.631 (c), “Provide Adequate Information”

2.1 Gas Control Room Management Operations Manual, Section 2, [Utility Procedure TD-4436P-01, “Gas System Operations CRM – Information Management,”](#) provides T&D control center personnel with the information and tools needed to monitor and operate gas systems. This procedure addresses the following topics:

- Annual verification of SCADA system changes and ongoing point-to-point verification (when field equipment is added or moved)
- Annual testing and verification of internal communications plans
- Annual testing of the SCADA system (alternate gas control)
- Implementing a control room shift change process to ensure proper transfer of information
- Establishing controls to periodically review procedures for infrequent system setups in advance of application

3 49 CFR §192.631 (d), “Fatigue Mitigation”

3.1 Gas Control Room Management Operations Manual, Section 3, [Utility Procedure TD-4436P-02, “Gas System Operations CRM – Personnel Fatigue Mitigation,”](#) standardizes fatigue mitigation methods to reduce the risk associated with fatigue that could prevent gas control personnel from carrying out defined roles and responsibilities. This procedure addresses the following topics:

- Management of shift schedules for fatigue mitigation
- Education and training for fatigue mitigation
- Monitoring personnel for signs of fatigue
- Conducting post-incident investigations to see whether fatigue involving gas control personnel contributed to the incident

Gas System Operations Control Room Management

4 49 CFR §192.631 (e), “Alarm Management”

4.1 *Gas Control Room Management Operations Manual*, Section 4, [Utility Procedure TD-4436P-03, “Gas System Operations CRM – Alarm Management.”](#) standardizes a written alarm management plan to provide for effective operator response to alarms, defines alarm setting criteria, and establishes an annual review of alarms. This procedure addresses the following topics:

- Establishing a written alarm management plan to provide for effective response to alarms by gas control personnel
- Monthly (at least once each calendar month) identification of alarm points affecting safety, taken off scan, or inhibited for extended periods
- Annual review of alarms to ensure accuracy and support safe operation of the gas system
- Annual verification of the correct alarm setting values and alarm descriptions
- Annual review of the alarm management plan for effectiveness
- Monitoring the content and volume of activity for each senior transmission coordinator, senior distribution coordinator, transmission coordinator, distribution coordinator, transmission gas system operators, and distribution gas system operators to ensure that they have sufficient time to analyze and properly respond to incoming alarms. (Refer to the *Alarm Management Plan* in the *Gas Control Room Management Operations Manual*, Section 4, for more details.)

5 49 CFR §192.631 (f), “Change Management”

5.1 *Gas Control Room Management Operations Manual*, Section 5, [Utility Procedure TD-4436P-04, “Gas System Operations CRM – Management of Pipeline Changes.”](#) standardizes change management to ensure that all changes to the SCADA system, planning and implementation of physical changes to pipeline equipment, and configuration changes to pipeline systems are coordinated with gas control personnel. This procedure addresses the following topics:

- Establishing a change management plan to ensure that changes that could affect control room operations are coordinated with control room personnel
- Establishing a communication plan between gas control personnel and associated field personnel when planning and implementing physical changes to pipeline equipment or configurations
- Establishing a process for external departments to include control room participation in planning before implementing significant pipeline hydraulic or configuration changes

Gas System Operations Control Room Management

6 49 CFR §192.631 (g), “Operating Experience”

6.1 *Gas Control Room Management Operations Manual*, Section 6, [Utility Procedure TD-4436P-05, “Gas System Operations CRM – Evaluating Operational Experiences.”](#) standardizes a process to incorporate lessons learned from gas events and abnormal operating conditions (AOCs). This procedure addresses the following topics:

- Establishing a procedure to ensure that lessons learned from operating experience are incorporated into this utility standard or affected utility procedures
- Reviewing any incident that meets the criteria established in [49 CFR Part 191, “Transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports.”](#) to determine whether there is reason to believe control room actions contributed to the event; correcting any discovered deficiencies related to operator fatigue, field equipment, operation of any relief device, procedures, SCADA system configuration, or SCADA system performance
- Incorporating lessons learned from applicable gas events and AOCs into respective training programs

7 49 CFR §192.631 (h), “Training”

7.1 *Gas Control Room Management Operations Manual*, Section 7, [Utility Procedure TD-4436P-06, “Gas System Operations CRM – Gas Transmission and Gas Distribution Training Programs.”](#) standardizes training in monitoring and remote operations of the gas system for gas control personnel. This procedure addresses the following topics:

- Implementing a training program for senior transmission coordinators, senior distribution coordinators, transmission coordinators, distribution coordinators, transmission gas system operators, and distribution gas system operators
- Providing training for responding to abnormal and emergency operating conditions that may occur simultaneously or in sequence
- Providing training on responsibilities for communications when performing emergency response procedures
- Providing training to ensure that gas control personnel have a working knowledge of the pipeline system to recognize the development of abnormal and emergency operating conditions
- Providing training in fatigue mitigation and procedures for all areas of control room management

Gas System Operations Control Room Management

8 49 CFR §192.631 (i) and (j), “Compliance Validation and Deviation”

- 8.1 Gas control personnel must maintain records that demonstrate compliance with the requirements of [49 CFR §192.631, “Control room management.”](#) The procedures governed by this utility standard specify the records that must be kept.
- 8.2 The senior director of gas system operations (GSO) must keep documentation demonstrating that any deviation from the procedures required by this utility standard was necessary for the safe operation of a pipeline facility. Deviations must be documented on [Form TD-4436S-F01, “Gas Control Deviation Report.”](#)
- 8.3 Upon request, gas control personnel must provide records and documentation to the California Public Utilities Commission (CPUC) or Pipeline Hazardous Material Safety Administration (PHMSA) of the above information to demonstrate compliance with the requirements in this utility standard.

9 Audits and Compliance Reviews

- 9.1 The responsible senior director of GSO and the gas control managers, or delegate, measure the implementation and effectiveness of this utility standard once each calendar year, not to exceed 15 months to the date.
- 9.2 Internal Company personnel may also perform periodic audits to ensure compliance.

10 Recordkeeping

- 10.1 The gas control managers or delegate must perform the following recordkeeping tasks for all control room procedures:
- Implement a plan for retention of records.
 - Conduct an annual review of this utility standard, associated utility procedures, and associated processes and plans in accordance with [Utility Procedure TD-4001P-02, “Gas Guidance Document Review and Update.”](#) Document the review on [Form TD-4436S-F02, “Procedure Review for CRM Documents.”](#)
 - Conduct an annual review of the copies of the *GTCC Control Room Management Operations Manual* and the *GDCC Control Room Management Operations Manual* identified in Section [1.2](#) of this utility standard to ensure the contents are updated with the most recent information.
 - Ensure that all documentation required by this utility standard is retained a minimum of 7 years. See [Corporation Standard GOV-7101S, “Records Management Standard”](#).
- 10.2 The gas system supervisors or delegate must perform the following recordkeeping tasks:
- Maintain documentation of training for gas control personnel.
 - Maintain documentation of tailboards and operations staff meetings.

Gas System Operations Control Room Management

- 10.3 Coordinate with PG&E Academy to ensure that training records for gas control personnel are made available upon request.

END of Requirements

DEFINITIONS

Controller: PHMSA defines a controller as a qualified individual who performs the following tasks:

- Remotely monitors and controls the safety-related operations of a pipeline facility via a SCADA system from gas control
- Has operational authority and accountability for the remote operational functions of the pipeline facility

See [49 CFR §192.631, "Control room management,"](#) for the regulatory definition of "controller."

Operator: At the Company, the term "operator" in gas control identifies senior transmission coordinators, senior distribution coordinators, transmission coordinators, distribution coordinators, transmission gas system operators, and distribution gas system operators. These individuals perform the tasks described by PHMSA meeting the definition of "controller."

Pipeline facility: As defined in [49 CFR §192.3, "Definitions,"](#) and [49 CFR §195.2, "Definitions,"](#) any equipment used in the transportation of gas or hazardous liquids. CRM regulations apply to control rooms and controllers that remotely monitor and control pipeline facilities, including but not limited to breakout tanks, pumps, compressors, or other equipment along the pipeline.

IMPLEMENTATION RESPONSIBILITIES

The senior director in charge of GSO is responsible for the following implementation tasks:

- Approving, revising, and implementing this Utility Standard
- Implementation of the communications plan

Additionally, the senior director in charge of GSO is authorized to modify this utility standard, forms, or instructions as needed or to approve variances from this utility standard on an exception basis

The gas control managers who direct the operations of the gas system are responsible for control room management compliance and annual review.

Gas System Operations Control Room Management

GOVERNING DOCUMENT

The policy governing this utility standard is [Utility Policy 3-7, "Gas and Electric Operation, Maintenance, and Construction"](#).

COMPLIANCE REQUIREMENT / REGULATORY COMMITMENT

The compliance requirement and regulatory commitment for this utility standard is [49 CFR 192.631, "Control room management."](#)

This utility standard must be submitted upon request to the applicable federal or state pipeline safety regulatory agencies.

REFERENCE DOCUMENTS

Developmental References:

API 1165 (hard copy in the *Control Room Management Operations Manuals*)

API 1167 (hard copy in the *Control Room Management Operations Manuals*)

API 1168 (hard copy in the *Control Room Management Operations Manuals*)

[TD-4008S "Operator Qualification Program Requirements"](#)

[TD-4436P-01, "Gas System Operations CRM – Information Management"](#)

[TD-4436P-02, "Gas System Operations CRM – Personnel Fatigue Mitigation"](#)

[TD-4436P-03, "Gas System Operations CRM – Alarm Management"](#)

[TD-4436P-04, "Gas System Operations CRM – Management of Pipeline Changes"](#)

[TD-4436P-05, "Gas System Operations CRM – Evaluating Operational Experiences"](#)

[TD-4436P-06, "Gas System Operations CRM – Gas Transmission and Gas Distribution Training Programs"](#)

Supplemental References:

NA

APPENDICES

NA

Gas System Operations Control Room Management

ATTACHMENTS

[Attachment 1, "Gas Control Personnel Roles and Responsibilities"](#)

[Attachment 2, "Responsibilities for Management Personnel in the Gas Transmission Control Center Supporting the CRM Plan"](#)

[Attachment 3, "Responsibilities of Personnel Outside the Gas Transmission Control Center Supporting the CRM Plan"](#)

[Attachment 4, Form TD-4436S-F01, "Control Room Management Deviation Report"](#)

[Attachment 5, Form TD-4436S-F02, "Procedure Review for CRM Documents"](#)

[Attachment 6, "Distribution Gas Control Personnel Roles and Responsibilities"](#)

[Attachment 7, "Responsibilities for Management Personnel in the Gas Distribution Control Center Supporting the CRM Plan"](#)

[Attachment 8, "Responsibilities of Personnel Outside the Gas Distribution Control Center Supporting the CRM Plan"](#)

[Attachment 9, "Gas Control Room Separation"](#)

DOCUMENT REVISION

This document supersedes Utility Standard TD-4436S, "Gas System Operations Control Room Management," Rev. 6, issued 11/2014.

DOCUMENT APPROVER

Mel Christopher, Senior Director

DOCUMENT OWNER

Stephanie Uhlich, Engineer

DOCUMENT CONTACT

Alfred Robert Musgrove, Specialist

Nicolyn Hernandez, Program Manager

REVISION NOTES

Where?	What Changed?
Attachment 2, Rev. 7	Removed the term "quarterly" from references to operations meetings