Pacific Gas and Electric Company®

Kristina Castrence
Sr. Director, Gas Regulatory & Risk
6121 Bollinger Canyon Road
San Ramon, CA 94583
Phone: (415) 407-1152
Email: Kristina.Castrence@pge.com

March 5, 2025

Mr. Terence Eng, P.E.
Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Re: General Order 112-F Gas Inspection of PG&E's Control Room Management Program

Dear Mr. Eng:

Pacific Gas and Electric Company (PG&E) submits this response to the Safety and Enforcement Division's (SED) Post-Inspection Written Findings (Summary) report received February 5, 2025, stemming from the SED inspection of PG&E's Control Room Management Program, conducted from December 2 to December 6, 2024.

The SED's Summary noted one violation and six concerns that were identified during the inspection. For clarity, each of the items identified in the Summary will be repeated, followed by PG&E's response.

Unsatisfactory Result #1: CRM, SCADA, and Leak Detection: Fatigue Management (CR.CRMFM)

Question Title, ID	Fatigue Education, CR.CRMFM.FATIGUEEDUCATE.R
Question	22. Is periodic fatigue education/training documented for all controllers and control room supervisors?
References	192.631(d)(2) (192.631(d)(3))
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed schedules and time sheets of Control Room Management staff on 4 randomly selected months (October 2020, August 2021, December 2022, July 2023) in the audit window. From these records, a selection of controllers were picked and fatigue management training qualifications were reviewed. According to PG&E's procedure,

CRM - Fatigue Mitigation TD-4436P-02, GCC personnel must complete fatigue training, covering the following topics, once each calendar year, not to exceed 15 months to the date:
a. Fatigue mitigation strategies
b. Fatigue recognition
c. Fatigue mitigation

SED found two controller personnel in violation of PG&E procedures by not having fatigue training complete within the 15-month period. Personnel with LAN ID ▮▮▮▮ had a gap of 16 months between trainings, and personnel with LAN ID ▮▮▮▮ has been an active controller since 2020, but the latest fatigue training was completed in 6/6/2021, meaning they haven't completed the training form the years of 2022 and 2023 when they were a controller.

According to 49 CFR §192.605(a):

Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.

Since PG&E personnel didn't have fatigue trainings done within the established timeframe, according to PG&E's procedure, SED finds PG&E in violation of 49 CFR §192.605(a).

Response to Unsatisfactory Result #1:

PG&E acknowledges this finding and has confirmed both employees are now in compliance with our periodic fatigue education/training (Att-01). To increase visibility of Gas Control Center (GCC) staff's completion status, PG&E worked with our third-party learning management system (LMS) host to automate weekly progress emails to each GCC leader. An example report regarding our distribution row intended for the gas system supervisor is included (Att-02) and will help raise awareness of the upcoming deadlines for training, enabling GCC Leadership to ensure that their employees complete fatigue management training in a timely manner.

Concern #1: CRM, SCADA, and Leak Detection: CRM Roles and Responsibilities (CR.CRMRR)

Question Title, ID	Shift Change Process - Documentation, CR.CRMRR.HANDOVERDOC.R
Question	14. Are there records that document the hand-over of responsibility, document the time the actual hand-over of responsibility occurs, and the key information and topics that were communicated during the hand-over?
References	192.631(b)(4) (192.631(c)(5))
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed a selection of PG&E's shift change forms from 2020-2023 as well as observed the evening shift changes on December 4, 2024 and the associated forms. SED observed that PG&E controllers will round to the hour their shift ends, such as 1700 or 1800, rather than entering the actual time of the shift change. SED is concerned about this lack of precision in data. This practice does not accurately document the actual time the shift change occurs. Also, PG&E's shift change forms for the Senior Gas System Operator (SGSO) and the Gas System Controller (GSC) contain notes fields that automatically roll over from one shift change form to another. These notes fields can be edited by the controller at the desk and some fields contain an extensive list of notes. SED observed that during shift changes, PG&E controllers do not review every item with the incoming controller because conditions have not changed during their shift or perhaps over several days. SED is concerned the notes on the shift change form do not reflect the actual items that were discussed during shift changes. SED is aware that the information in those notes may be items that the controllers need to know, but if they are not pertinent at the time of the shift change then the information can be documented somewhere else.

Response to Concern #1:

PG&E has provided refresher guidance on best practices when completing shift change records used to document the transfer of responsibility and key information and topics communicated during shift handovers (Att-03).

Concern #2: CRM, SCADA, and Leak Detection: Fatigue Management (CR.CRMFM)

Question Title, ID	Scheduled Shift Length, CR.CRMFM.SHIFTLENGTH.R
Question	5. Is the scheduled shift length less than or equal to 12 hours (not including shift hand-over) or is there a documented technical basis to show that shift lengths and schedule

	rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?
References	192.631(d)(1) (192.631(a))
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed control room staff schedules, which are annotated by controllers with changes as people miss shifts and on-call personnel fill in gaps. After reviewing time sheets, SED found that staff self-report hours worked. Being reliant on personnel self-reporting hours lacks the accuracy that could pinpoint issues. Since the accuracy of time-keeping is reliant on self-reporting, it makes it difficult to get accurate records for demonstrating that shift lengths are adequate to provide sufficient off-duty time to achieve eight hours of continuous sleep. SED is concerned about this lack of precision in data, as this practice does not accurately document the actual time the shift change occurs.

Response to Concern #2:

GCC Leadership sits within the control room and are responsible for the creation and adjustments made to the schedule to assure adequate time off between shifts is provided and hours-of-service limitations are observed. In cases when GCC Leadership may be inaccessible, the Gas System Controller (GSC) is a management employee and designated to backfill as appropriate.

PG&E has provided a refresher guidance on best practices when scheduling records are used to document that scheduled shift lengths are less than or equal to 12 hours and controllers are provided off-duty time sufficient to achieve 8 hours of continuous sleep (Att-03).

Concern #3: Scheduled Time Off Between Shifts, CR.CRMFM.SCHEDULEDTIMEOFF.R

Question Title, ID	Scheduled Time Off Between Shifts, CR.CRMFM.SCHEDULEDTIMEOFF.R
Question	7. Are all scheduled periods of time off at least one hour longer than 8 hours plus commute time or is there a documented technical basis to show that shift lengths and schedule rotations are adequate to provide controllers off-duty time sufficient to achieve 8 hours of continuous sleep?
References	192.631(d)(1)
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed control room staff schedules, which are annotated by controllers with changes as people miss shifts and on-call personnel fill in gaps. After reviewing time sheets, SED found that staff self-report hours worked. Being reliant on personnel self-reporting hours lacks the accuracy that could pinpoint issues. Since the accuracy of time keeping is reliant on self-reporting, it makes it difficult to get accurate records for demonstrating that shift lengths are adequate to provide sufficient off-duty time to achieve eight hours of continuous sleep. SED is concerned about this lack of precision in data, as this practice does not accurately document the actual time the shift change occurs.

Response to Concern #3:

Gas Control Center (GCC) Leadership sits within the control room and are responsible for the creation and adjustments made to the schedule to assure adequate time off between shifts is provided and hours-of-service limitations are observed. In cases when GCC Leadership may be inaccessible, the Gas System Controller (GSC) is a management employee and designated to backfill as appropriate.

PG&E has provided refresher guidance on best practices for scheduling shifts (Att-03). These records are used to document all scheduled periods of time off that are at least one hour longer than 8 hours, plus commute time.

Concern #4: CRM, SCADA, and Leak Detection: Change Management (CR.CRMCMGT)

Question Title, ID	Field Equipment Changes, CR.CRMCMGT.EQUIPMENTCHANGES.P
Question	1. Is there a process to assure changes in field equipment that could affect control room operations are coordinated with the control room personnel?
References	192.631(f)(1)
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed PG&E's utility procedure TD-4436P-04 "Gas System Operations CRM - Management of Pipeline Changes." Section 1 of TD-4436P-04 outlines the process to assess changes in field equipment while adhering to the communication management plan. This procedure also references procedure TD-4441S "Gas Clearances", which covers the communication portion. However, SED also reviewed a selection of bulletins/trainings that went out to the controllers as part of their Management of Change (MoC) process. PG&E stated that these trainings are usually published ahead of the actual change. SED reviewed 16 out of 380 trainings that were sent to controllers under their MoC process during our audit period. Of those 16 MoCs, 11 involved changes to the SCADA system. When comparing the release date of the training compared to the implementation date of the training, SED found that 7 MoCs were released on the same day that the changes were made so the controllers did not have the opportunity to complete the training on the changes before the updates were made. For the other 4 SCADA related MoCs, SED found that many of the controllers did not complete the training before the effective date of the change. For example, MOC TB 21-100 "Transmission Lines with associated MP to Distribution SCADA PT1" was released on 12/7/21 with an implementation date of 12/13/21. The records show that only 16 of 35 controllers completed it before the implementation date. It is crucial for a controller to be trained on or be aware of an MoC before taking control of a console. Regardless of whether or not the changes are communicated in other ways, PG&E's system of record does not show that all controllers have been trained on all vital information before taking control of a console.

Response to Concern #4:

PG&E acknowledges these discrepancies and has established a minimum of five (5) days be provided to complete Management of Change (MOC) related content within the LMS before the change is implemented (Att-03). The automated weekly progress reports from the LMS will also provide increased visibility enabling GCC Leadership to track completion of each controller. PG&E appreciates the thorough review and feedback and has initiated efforts to strengthen our change management practices in 2025.

Concern #5: CRM, SCADA, and Leak Detection: Training (CR.CRMTRAIN)

Question Title, ID	Review of Procedures Prior to Use, CR.CRMTRAIN.INFREQOPSREVIEW.P
Question	13. Do processes specify that, for pipeline operating set-ups that are periodically (but infrequently) used, the controllers must be provided an opportunity to review relevant procedures in advance of their use?
References	192.631(h)(5)
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed the training that PG&E releases annually for their winter gas season, which is the gas operating set-up that PG&E has determined is periodically (but infrequently) used. PG&E stated that the winter gas season usually starts around November 15th every year

but can sometimes start later depending on cold weather events. SED also reviewed the completion record for controllers completing the training during our audit period of 2020-2023. SED found several instances of controllers not completing this training until December or later, and in 6 instances not until the next calendar year. As part of their response, PG&E stated that implementation of design settings for the set-up would also be communicated using their Gas Logging System and during shift changes. However, if PG&E intends the training to be a refresher for this set up each year and also the system of record for training completion, they need to ensure that the controllers have completed this training before the infrequently used set-ups are implemented and before taking control of a console with the new set-up.

Response to Concern #5:

PG&E acknowledges the opportunity to enhance this process involving our third-party LMS. The automated weekly progress reports from the LMS will offer greater visibility, allowing GCC Leadership to monitor the completion status of each controller. PG&E values the thorough review and feedback.

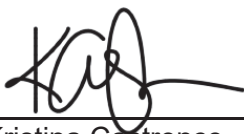## Concern #6: CRM, SCADA, and Leak Detection: Training (CR.CRMTRAIN)

Question Title, ID	Control Room Team Training - Exercises, CR.CRMTRAIN.TEAMTRAINEXERCISE.R
Question	18. Do records indicate that training exercises were adequate and involved at least one qualified controller?
References	192.631(h)(6)
Assets Covered	Main Office (Specialized Inspections) (CRM)
Issue Summary	SED reviewed PG&E's team training records from 2020-2023 as well as the content of the team training that PG&E has been using for the duration of our audit period. SED has no issues with the content of the team training and PG&E informed SED that the class was almost always led by a qualified controller even if one could not attend. However, PG&E was unable to provide records that showed which departments were involved in a given iteration of team training. Records provided only showed the names of the individuals or their current position, not the position they held at the time of training. SED believes that it is important that PG&E keep records of which departments are represented in an instance of a team training class, given that the intent of team training is that different departments of a company are learning how to work together more effectively.

Response to Concern #6:

All instances of team training had a qualified controller participating to assure the experiences from GCC's perspective were communicated amongst those whom they operationally collaborate with. PG&E appreciates the recommendation to record each participant's department and role at the time of the training and has implemented the change in the latest version of the training attendance tracker (Att-04).
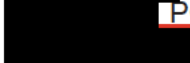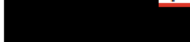
Please contact ███ for any questions you may have regarding this response.

Sincerely,

Kristina Castrence
Sr. Director, Gas Regulatory and Risk

Gas Engineering

cc: Claudia Almengor, CPUC
       Terence Eng, CPUC
       Dennis Lee, CPUC
       James Zhang, CPUC
       ██████████ PG&E
       ██████████ PG&E
       ██████████ PG&E

Attachments:

Attachment 1 – Att-01_Fatigue Training History for Operators
Attachment 2 – Att-02_Extend LMS weekly report.pdf
Attachment 3 – Att-03_5MM_Awareness and Refreshers - SED Inspection Findings
Attachment 4 – Att-04_Gas-9225 Web Roster 01.27.2025