



Frances Yee  
Acting Director  
Regulatory Compliance & Support  
Gas Operations

375 N. Wiget Lane, Suite 200  
Walnut Creek, CA 94598

925-974-4316  
Fax: 925-974-4232  
Internet: FSC2@pge.com

June 20, 2013

Mr. Michael Robertson  
Gas Safety and Reliability Branch  
Safety and Enforcement Division  
California Public Utilities Commission  
320 West 4<sup>th</sup> Street, Suite 500  
Los Angeles, CA. 90013

Re: State of California – Public Utilities Commission  
General Order 112-E Audit – PG&E’s Control Room Management Program

Dear Mr. Robertson:

The Safety and Enforcement Division (SED), Gas Safety and Reliability Branch (GSRB) of the CPUC conducted a General Order 112-E audit of PG&E’s Control Room Management, from October 29 through November 2, 2012. On May 21, 2013, the SED submitted their audit report, identifying probable violations and areas of concern. Attached is PG&E’s response to the CPUC audit report.

Please contact Charles Chang at (925) 974-4248 or [CYC8@pge.com](mailto:CYC8@pge.com) for any questions you may have regarding this response.

Sincerely,

/S/

Frances Yee

Attachments

cc: Banu Acimis, CPUC  
Aimee Cauguiran, CPUC  
Fred Hanes, CPUC  
Dennis Lee, CPUC  
Alin Podoreanu, CPUC  
Sunil Shori, CPUC  
Byron Coy, PHMSA Eastern Region  
Hossein Monfared, PHMSA Western Region  
Larry Berg, PG&E  
Larry Deniston, PG&E  
Keith Slibsager, PG&E  
Andy Wenzel, PG&E  
Jane Yura, PG&E

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

Inspection Dates	Finding	CPUC Contact	CPUC Phone #
October 29 – November 2, 2013	NOV-1	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>I. Title 49 Code of Federal Regulations (CFR) §192.631 Control room management, Section (d) Fatigue mitigation.</b></p> <p>(d) <i>Fatigue mitigation.</i> Each operator must implement the following methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities the operator has defined:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;</p> <p>(4) Establish a maximum limit on controller hours-of-service, which may provide for an emergency deviation from the maximum limit if necessary for the safe operation of a pipeline facility.</p> <p>SED reviewed the controllers' schedules and noted that PG&amp;E established shift lengths and schedule rotations that provided its controllers to have off-duty time sufficient to achieve eight hours of continuous sleep and one hour personal time in addition to commute time.</p> <p>PHMSA FAQ D-03 explains that PHMSA encourages at least ten continuous hours of off-duty time to allow for commutes and other personal activities prior to going to sleep or after waking up. Shorter/longer commute times or the availability of nearby sleep facilities may influence the appropriate amount of off-duty time.</p> <p>On October 22, 2012, PG&amp;E documented a Gas Control Deviation Report regarding a Gas System Operator (GSO) who has a long commute (typical 3-4 hours round trip) which could prevent the GSO from having eight hours of continuous sleep plus one hour personal time between shifts as required under the Fatigue Management rules.</p> <p>PHMSA FAQ D-13 states that if additional risks exist as a result of any deviation, the operator would be expected to have or develop a corresponding plan to employ appropriate countermeasures, and demonstrate how those measures offset the additional risks. Frequent occurrence of the same type of deviation should prompt the operator to review policies and procedures to minimize their occurrence.</p>
--------------	---

Definitions: NOV – Notice of Violation  
AOC – Area of Concern  
AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

	<p>SED reviewed the deviation report that PG&amp;E documented and discussed the details of the unique situation of one of the controllers whose commute time to and from work is approximately 3-4 hours each day. SED discussed the controller's circumstances and evaluated the potential additional fatigue risks associated with the exception and PG&amp;E's countermeasures to be employed to offset any additional risks for fatigue. SED determined that this is a recurring deviation and the unique situation will continue to exist as long as the controller commutes to PG&amp;E's Control Room located in San Francisco.</p> <p>SED determined that under the current circumstances, it is not always possible for this controller to have eight hours of continuous sleep plus one hour of personal time due to the controller's long commute to San Francisco. SED found that this type of deviation has been recurring frequently. PG&amp;E must either modify its policies and procedures to minimize the likelihood of occurrence of this deviation or reduce this controller's hours of service (HOS) to decrease the potential for risk of controller fatigue during his shift. As a result, PG&amp;E is in violation of Title 49 CFR 192.631(d)(1) &amp; 192.631(d)(4).</p> <p>PG&amp;E representatives explained that PG&amp;E has already planned to relocate its Control Room to San Ramon in 2013 which will resolve this issue by reducing the commute time for this controller.</p> <p>Please inform SED the effective preventive measures PG&amp;E plans to take in order to deal with this extraordinary case of individual fatigue to prevent any undesirable consequences. Additionally, please inform us when the Control Room is relocated to San Ramon.</p>
--	--

**PG&E RESPONSE**

PG&E disagrees with this finding. Title 49 CFR §192.631(d)(1) and §192.631(d)(4) require eight hours of continuous sleep, but do not specify or require one additional hour of personal time. As stated by SED, PG&E has established shift lengths and schedule rotation to allow off-duty time sufficient to achieve eight hours of continuous sleep.

However, PG&E agrees that there is an area of concern with our intent to provide eight hours of off duty time plus one hour of additional personal time for one Controller. Occasionally, depending on commute conditions this particular Controller's personal time may be reduced by 30 minutes from the desired 1 hour.

PG&E is addressing this area of concern, as follows:

- a) PG&E's upcoming control center relocation, in the 3rd Quarter of 2013, to Bishop Ranch (San Ramon) eliminates this concern for this Controller.
- b) All gas control personnel are required, during shift exchange, to acknowledge and verify that they are fit for duty before assuming responsibility for the shift.

Definitions:      NOV – Notice of Violation  
                          AOC – Area of Concern  
                          AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

- |   |
|---|
| <ul style="list-style-type: none"> <li>c) This Controller stays locally when fatigued to achieve adequate rest (8 hours plus personal time).</li> <li>d) The company provides fatigue countermeasures, as outlined in the Control Room Management (CRM) Plan, including providing the option for local lodging and/or alternative transportation home.</li> <li>e) PG&amp;E is currently working with our IBEW represented employees to establish a residency requirement to proactively manage commute hours for any new operators accepting positions in the control room. It is anticipated that a Letter of Agreement will be finalized prior to the end of the 3rd Quarter of 2013. A residency requirement already exists for management control room personnel working rotating 12 hour shifts.</li> </ul> |
|---|

**ATTACHMENTS**

Attachment #	Title or Subject
None	None

**ACTION REQUIRED**

Action To Be Taken	Due Date	Completion Date	Responsible Dept.
Relocate control center to Bishop Ranch (San Ramon)	September 30, 2013		GSO-GTCC
Establish residency requirement in agreement with IBEW employees	September 30, 2013		GSO-GTCC

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	NOV-2	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>II. Title 49 CFR §192.631 Control room management, Section (j) Compliance and deviations.</b></p> <p>(j) <i>Compliance and deviations.</i> An operator must maintain for review during inspection:</p> <p>(1) Records that demonstrate compliance with the requirements of this section; and</p> <p>(2) Documentation to demonstrate that any deviation from the procedures required by this section was necessary for the safe operation of a pipeline facility.</p> <p>PG&amp;E’s deviation report that was filed on October 22, 2012, explains the deviation from its procedures and presents fatigue mitigation strategies for the GSO with the long commute time. However, the deviation report did not state why the deviation was necessary for safe operation of the pipeline facility. As a result, PG&amp;E is in violation of Title 49 CFR 192.631(j)(2). PG&amp;E needs to make an explicit statement as to why the deviation was necessary for safe operation as required by Title 49 CFR 192.631(j)(2).</p> <p>SED also noted that even though PG&amp;E’s standard fatigue mitigation procedures and the special countermeasures adopted in the Deviation Report appear to be adequate to minimize the risk of the controller’s fatigue, PG&amp;E is required to ensure that these countermeasures are followed diligently so that risk is not increased.</p> <p>PG&amp;E must develop a program to assess the effectiveness of the mitigation strategy to keep the GSO from becoming a safety risk. Such a program would include tracking of the daily commute time and the number of positive Fatigue Assessments for the GSO in comparison with co-workers. PG&amp;E must also take further action if the commute time does not routinely provide the minimum eight hours of sleep plus personal time between shifts.</p>
--------------	--

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**PG&E RESPONSE**

PG&E agrees with the finding associated with Title 49 CFR §192.631(j)(2).

PG&E revised its Gas Control Deviation Report to include a description of the reason why the deviation was necessary for the safe operation of the pipeline (See Attachment 1). A modification of the Controller's schedule from 12 to 11 hours was evaluated. The modification would have required other Controllers to work 13 hours potentially impacting their 1 hour of personal time. The safe operation of the system was best attained by employing our fatigue countermeasures with the single Controller. As stated in response to NOV-1, PG&E is implementing a residency requirement for its IBEW represented employees which will prevent a similar situation in the future.

**ATTACHMENTS**

Attachment #	Title or Subject
1	Gas Control Deviation Report

**ACTION REQUIRED**

Action To Be Taken	Due Date	Completion Date	Responsible Dept.
Revised Gas Control Deviation Report	N/A	November 5, 2012	GSO-GTCC

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-1	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>I. Title 49 CFR §192.631 Control room management, Section (b) Roles and responsibilities.</b></p> <p>(b) <i>Roles and responsibilities.</i> Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. To provide for a controller's prompt and appropriate response to operating conditions, an operator must define each of the following:</p> <p>(1) A controller's authority and responsibility to make decisions and take actions during normal operations;</p> <p>(2) A controller's role when an abnormal operating condition is detected, even if the controller is not the first to detect the condition, including the controller's responsibility to take specific actions and to communicate with others.</p> <p><b>I-1</b> SED reviewed PG&amp;E's CRM procedures and determined that the procedures that define roles and responsibilities should include a requirement for controllers to stay at the console to verify that all SCADA commands that have been initiated are fulfilled, and that commands given via verbal communications are acknowledged before leaving the console for any reason. For the command actions that are critical to maintain safety, controllers should remain attentive during this time, and not leave the console prematurely. Additionally, CRM procedures should only allow one controller to take a break at a time.</p>
--------------	---

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. PG&amp;E incorporated the recommended requirements into CRM Section 2.3, "Console Specific Shift Change Process," Subsection 2 on November 16, 2012 (See Attachment 2). The incorporated requirements include allowing only one controller to take a break at a time, and ensuring that all outstanding orders not requiring a series of operations will be completed prior to taking lunches or breaks.</p>
--

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
2	2.3 Console Specific Shift Change Process

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Revise Console Specific Shift Change Process	N/A	November 16, 2012	GSO-GTCC

Definitions:      NOV – Notice of Violation  
                          AOC – Area of Concern  
                          AIR – Additional Information Requested



**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-2	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>I. Title 49 CFR §192.631 Control room management, Section (b) Roles and responsibilities.</b></p> <p><b>I-2</b> The Maximum Allowable Operating Pressure (MAOP) of PG&amp;E’s gas pipeline system has been determined by engineering; therefore, GSOs cannot change the MAOP pressure settings. However, if a GSO sends out an invalid pressure command to change pressure settings, the system would not alert the GSO with an error message; therefore, the GSO would not know if the command was accepted or denied. SED noted that PG&amp;E’s system should create a warning alert for the GSO that the command is invalid and the system will not accept it in case an invalid pressure command is sent.</p>
--------------	---

**PG&E RESPONSE**

<p>PG&amp;E recognizes this concern and is considering adding a warning alert with an error message to advise the GSO that the requested pressure setting is above MAOP and will not be accepted by the system. PG&amp;E is evaluating whether such a warning should be initiated at the SCADA system server level or by the Remote Terminal Unit. The determination of whether and how to implement the warning alert will be considered during the process for selecting the new SCADA system which is scheduled for installation in 2014-15.</p>
---

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
None	None

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Evaluate potential implementation of warning alert for new SCADA system	June 30, 2014		GSO– GCS&S

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-3	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>II. Title 49 CFR §192.631 Control room management, Section (c) Provide adequate information.</b></p> <p>(c) Provide adequate information. Each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined by performing each of the following:</p> <p>(1) Implement sections 1, 4, 8, 9, 11.1, and 11.3 of API RP 1165 (incorporated by reference, see § 192.7) whenever a SCADA system is added, expanded or replaced, unless the operator demonstrates that certain provisions of sections 1, 4, 8, 9, 11.1, and 11.3 of API RP 1165 are not practical for the SCADA system used;</p> <p>(2) Conduct a point-to-point verification between SCADA displays and related field equipment when field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays;</p> <p>(3) Test and verify an internal communication plan to provide adequate means for manual operation of the pipeline safely, at least once each calendar year, but at intervals not to exceed 15 months;</p> <p>(4) Test any backup SCADA systems at least once each calendar year, but at intervals not to exceed 15 months; and</p> <p>(5) Establish and implement procedures for when a different controller assumes responsibility, including the content of information to be exchanged.</p> <p><b>II-1</b> American Petroleum Institute (API) Recommended Practice (RP) 1165 focuses on the design and implementation of displays used for the display, monitoring, and control of information on pipeline SCADA. The primary purpose is to document industry practices that provide guidance to a pipeline company or operator who want to select a new SCADA system, or update or expand an existing SCADA</p>
--------------	---

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

	<p>system.</p> <p>CRM rules require that when an operator adds, expands, or replaces a SCADA system after August 1, 2012, the SCADA system must be in compliance with API RP 1165 immediately upon deployment. If it is not practical for the SCADA system to be in immediate compliance with CRM requirements, operators must document the deviation in accordance with paragraph (j)(2) of the CRM rule. The documentation must demonstrate why immediate compliance with all CRM requirements is not practical and how the deviation is necessary for safe operation. The documentation should also include a justified project timeline that with an indication when full compliance is to be attained.</p> <p>SED determined that PG&amp;E's procedures are deficient as when its SCADA system should meet the recommendations of API RP 1165. If PG&amp;E determines that it is not practical for it to implement the applicable sections of API RP 1165 when it adds, expands, or replaces its SCADA system, then PG&amp;E must describe in its CRM procedures the criterion used to make such a determination.</p>
--	--

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. The criterion for determining when the SCADA system should meet the API RP 1165 recommendations is based on a risk assessment of the change and will be incorporated into the CRM procedures. The recommendations will be implemented through deliberate planning, design, training, and implementation of new display standards which are expected to be developed and executed during the installation of a new SCADA system in 2014-15.</p>
--

**ATTACHMENTS**

Attachment #	Title or Subject
None	None

**ACTION REQUIRED**

Action To Be Taken	Due Date	Completion Date	Responsible Dept.
Implement API RP 1165 display standards for new SCADA system	On or before December 31, 2015		GSO-GCS&S

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-4	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>II. Title 49 CFR §192.631 Control room management, Section (c) Provide adequate information.</b></p> <p><b>II-2</b> Section 192.631(c)(2) requires operators to conduct a point-to-point verification between SCADA displays and related field equipment when field equipment is added or moved and when other changes that affect pipeline safety are made to field equipment or SCADA displays.</p> <p>PG&amp;E established and implemented the functional checkout procedure (FCO) for point-to-point verification which is utilized for testing, calibration, and adjusting electrical, mechanical, and instrumentation components in order to verify proper operating characteristics.</p> <p>SED noted that the FCO does not include a step to check all displays for a particular field instrument or equipment. PG&amp;E should include an explicit requirement to the FCO for final verification on the SCADA displays to verify that the field equipment reads the accurate actual line pressure. SED suggests that PG&amp;E also specify the number of displays that a particular process value appears on.</p> <p>SED also found that for partial simulation, PG&amp;E should establish a procedure to define what type of simulation is applicable for specific instrument and equipment during point-to-point verification.</p>
--------------	---

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. PG&amp;E incorporated SED’s recommendations into CRM Section 5.5b, “SCADA Functional Checkout Process,” Subsections 7 and 9 on December 4, 2012 (See Attachment 3). The revised content includes guidance to verify all identified SCADA displays during testing, and a final verification of “returned to normal” status. Simulated test input procedures are described in the Loop Test section of the SCADA Functional Checkout Process.</p>
---

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
3	5.5b SCADA Functional Checkout Process

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Update SCADA Functional Checkout Process	N/A	December 4, 2012	GSO-GTCC

Definitions:      NOV – Notice of Violation  
                          AOC – Area of Concern  
                          AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-5	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>II. Title 49 CFR §192.631 Control room management, Section (c) Provide adequate information.</b></p> <p><b>II-3</b> PG&amp;E established and implemented an Alternate Gas Control (AGC) Plan to transfer from primary SCADA located in San Francisco to backup SCADA located in Brentwood, and back to primary SCADA. However, the AGC Plan does not have an adequate procedure to explain when it is safe to put the primary SCADA system back on-line.</p> <p>Additionally, PG&amp;E should have some guidance criteria for the Senior Transmission Coordinator (Sr. TC) to use when deciding to return control back to the primary SCADA control room located in San Francisco. PG&amp;E notified SED during the audit that it had already updated its AGC Plan to correct this procedural deficiency.</p>
--------------	---

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. PG&amp;E incorporated SED’s recommendations into CRM Section 2.10, “Alternate Gas Control Relocation Plan,” Subsection 14 on November 16, 2012 (See Attachment 4). The revised content includes guidance for the Senior Transmission Coordinator to decide when to return primary SCADA control back to San Francisco, based on determination by Corporate Security and ISTS that it is safe to do so.</p>
--

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
4	2.10 Alternate Gas Control Relocation Plan

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Update Alternate Gas Control Relocation Plan	N/A	November 16, 2012	GSO-GTCC

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-6	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>II. Title 49 CFR §192.631 Control room management, Section (c) Provide adequate information.</b></p> <p><b>II-4</b> Section 192.631(c)(5) requires operators to establish and implement procedures for when a different controller assumes responsibility, including the content of information to be exchanged.</p> <p>SED recommends adding a guidance document to PG&amp;E's procedures for conducting a control room specific tailboard meeting after every shift change and to have specific tailboard items such as who conducts the tailboard meeting and the topics covered.</p>
--------------	--

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. PG&amp;E incorporated SED's recommendations into CRM Section 2.3, "Console Specific Shift Change Process," Subsection 1 on November 16, 2012 (See Attachment 2). The revised content includes guidance for the Senior TC to conduct a shift summary update after each shift change to ensure that all personnel share the information exchanged in their individual shift exchanges. PG&amp;E will also use the shift change checklists for the items to be discussed during the shift summary update, as outline in CRM Section 2.3, "Console Specific Shift Change Process" (See Attachment 2).</p>
---

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
2	2.3 Console Specific Shift Change Process

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Update Console Specific Shift Change Process	N/A	November 16, 2012	GSO

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-7	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>III. Title 49 CFR §192.631 Control room management, Section (d) Fatigue mitigation.</b></p> <p>(d) Fatigue mitigation. Each operator must implement the following methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities the operator has defined:</p> <p>(1) Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep.</p> <p>PG&amp;E's procedures do not address how it tracks controllers' HOS. During the audit, PG&amp;E supervisor explained that he would normally use the timesheets to tally the HOS. PG&amp;E should describe the process of tracking controllers' HOS in its CRM procedures.</p>
--------------	--

**PG&E RESPONSE**

<p>PG&amp;E agrees with this concern. PG&amp;E incorporated SED's recommendation into CRM Section 3.3, "Shift Work Scheduling Process," Subsection 1 on November 20, 2012 (See Attachment 5). The revised content includes guidance for the Gas System Supervisor to use time sheets as time cards to verify that employees are not exceeding the appropriate hours of service.</p>
---

**ATTACHMENTS**

<b>Attachment #</b>	<b>Title or Subject</b>
5	3.3 Shift Work Scheduling Process

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Update Shift Work Scheduling Process	N/A	November 20, 2012	GSO - GTCC

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested



**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-8	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>IV. Title 49 CFR §192.631 Control room management, Section (e) Alarm management.</b></p> <p>(e) Alarm management. Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. An operator's plan must include provisions to:</p> <ol style="list-style-type: none"> <li>(1) Review SCADA safety-related alarm operations using a process that ensures alarms are accurate and support safe pipeline operations;</li> <li>(2) Identify at least once each calendar month points affecting safety that have been taken off scan in the SCADA host, have had alarms inhibited, generated false alarms, or that have had forced or manual values for periods of time exceeding that required for associated maintenance or operating activities;</li> <li>(3) Verify the correct safety-related alarm set-point values and alarm descriptions at least once each calendar year, but at intervals not to exceed 15 months;</li> <li>(4) Review the alarm management plan required by this paragraph at least once each calendar year, but at intervals not exceeding 15 months, to determine the effectiveness of the plan;</li> <li>(5) Monitor the content and volume of general activity being directed to and required of each controller at least once each calendar year, but at intervals not to exceed 15 months, that will assure controllers have sufficient time to analyze and react to incoming alarms; and</li> <li>(6) Address deficiencies identified through the implementation of paragraphs (e)(1) through (e)(5) of this section.</li> </ol> <p>PHMSA's FAQ E.17 suggests that controllers should not be able to change set points associated with critical maximum or minimum safety limits. However, operators may choose to allow controllers to change other mid-level alarm set points used for operational</p>
--------------	--

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

	<p>purposes.</p> <p>SED noted that PG&amp;E's GSOs can make set point changes to high-high (HH) and low-low (LL) alarms on its SCADA system. PG&amp;E should not allow its GSOs to change critical maximum and minimum safety limits. PG&amp;E should only give this responsibility and authority to its Sr. TCs or Transmission Coordinators (TC) instead of GSOs so that only the Sr. TCs and TCs are able to make changes to HH and LL alarms set points.</p>
--	--

**PG&E RESPONSE**

<p>PG&amp;E disagrees with this concern. ASME B31Q, Operator Qualification, provides the authority for qualified individuals to perform, or provide direction to perform, tasks such as making alarm setting adjustments. All high-high (HH) and low-low (LL) alarm setting adjustments are performed under the direction of qualified management employees. At least one qualified management employee is on shift at all times, per CRM Section 3.3, "Shift Work Scheduling Process," Subsection 1 (See Attachment 5).</p>
--

**ATTACHMENTS**

Attachment #	Title or Subject
5	3.3 Shift Work Scheduling Process

**ACTION REQUIRED**

Action To Be Taken	Due Date	Completion Date	Responsible Dept.
None			

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**INSPECTION INFORMATION**

<b>Inspection Dates</b>	<b>Finding</b>	<b>CPUC Contact</b>	<b>CPUC Phone #</b>
October 29 – November 2, 2013	AOC-9	Banu Acimis	(916) 928-3826

**INSPECTION FINDING**

CPUC Finding	<p><b>V. Title 49 CFR §192.631 Control room management, Section (h) Training.</b></p> <p>(h) Training. Each operator must establish a controller training program and review the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months. An operator's program must provide for training each controller to carry out the roles and responsibilities defined by the operator. In addition, the training program must include the following elements:</p> <ol style="list-style-type: none"> <li>(1) Responding to abnormal operating conditions likely to occur simultaneously or in sequence;</li> <li>(2) Use of a computerized simulator or non-computerized (tabletop) method for training controllers to recognize abnormal operating conditions;</li> <li>(3) Training controllers on their responsibilities for communication under the operator's emergency response procedures;</li> <li>(4) Training that will provide a controller a working knowledge of the pipeline system, especially during the development of abnormal operating conditions; and</li> <li>(5) For pipeline operating setups that are periodically, but infrequently used, providing an opportunity for controllers to review relevant procedures in advance of their application.</li> </ol> <p>SED conducted an inspection of training records and procedures and identified the following deficiencies in PG&amp;E's training procedure, TD-4436P-06:</p> <p><b>V-1</b> It does not specify whether controller training on recognizing and responding to abnormal conditions must include lessons learned/critiques of all recent accidents/incidents.</p> <p><b>V-2</b> It does not specify how frequently hypothetical drills will be conducted to incorporate lessons learned from operational</p>
--------------	--

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

	<p>experiences.</p> <p><b>V-3</b> It does not specify any timeframe to incorporate any identified improvements in its controller training program as a result of annual reviews.</p> <p><b>V-4</b> It does not include a process to keep track of employees who participated in such computerized and tabletop training simulations. If some employees cannot attend the tabletop training, PG&amp;E should offer the training to those employees on a later date. PG&amp;E should also confirm employees' training completion dates.</p>
--	---

**PG&E RESPONSE**

PG&E agrees with these concerns.  
For SED recommendation V-1, PG&E will incorporate guidance in CRM Section 6.3, "Plan for Incorporating Lessons Learned from Operational Experiences," for including lessons learned and critiques of all recent incidents into controller training (See Attachment 6). The Gas Transmission Control Center (GTCC) Supervisor reviews *each* abnormal incident, including recommendations from the Senior TC on shift, for potential training opportunities. Incidents that are identified as a training opportunity will be included in the training development, possibly becoming a hypothetical drill/tabletop exercise.

For SED recommendation V-2, PG&E will incorporate guidance in CRM Section 6.3 to require all GTCC personnel to participate in at least one hypothetical drill annually as an instructor led training. Furthermore, all hypothetical drills as developed will be accessible to all GTCC personnel through the eWeb Learning Management System.

For SED recommendation V-3, PG&E will incorporate guidance in CRM Section 6.3 to update the Gas Control Training Program, as required, by the GTCC Operations Specialist Team and the PG&E Academy. Identified update requirements are not limited to annual reviews and will be incorporated in 90 days or less.

For SED recommendation V-4, PG&E will incorporate guidance in CRM Section 6.3 for the GTCC Operations Specialist Team to manage and document all attendees of hypothetical drills, computerized and tabletop training simulations. The Operations Specialist Team will ensure that all employees are able to attend tabletop trainings, as required.

**ATTACHMENTS**

Attachment #	Title or Subject
6	6.3 Plan for Incorporating Lessons Learned from Operational Experiences

Definitions:      NOV – Notice of Violation  
                           AOC – Area of Concern  
                           AIR – Additional Information Requested

**General Order 112-E Findings  
CPUC Inspection Report, dated May 21, 2013  
Control Room Management**

**ACTION REQUIRED**

<b>Action To Be Taken</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Responsible Dept.</b>
Update Plan for Incorporating Lessons Learned from Operational Experiences	September 30, 2013		GSO-GTCC

Definitions:      NOV – Notice of Violation  
                          AOC – Area of Concern  
                          AIR – Additional Information Requested