



SOUTHWEST GAS CORPORATION

July 5, 2022

Via Email

Mr. Dustin B. Hubbard
Director, Western Region
Office of Pipeline Safety
Pipeline and Hazardous Materials Safety Administration
12300 W. Dakota Ave., Suite 110
Lakewood, CO 80228

RE: CPF 5-2022-015-NOA

Dear Mr. Hubbard:

Southwest Gas Transmission Company (SWG or Company) is in receipt of your June 2, 2022 Notice of Amendment regarding an inspection of SWG's written procedures for Gas Control in Las Vegas, Nevada, performed by a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA). The inspection was conducted from May 10 through May 14, 2021, pursuant to Chapter 601 of 49 United States Code (U.S.C.).

Your letter identified apparent inadequacies found within SWG's plans or procedures.

Southwest submits the following responses for your consideration, regarding this matter. Please do not hesitate to reach out with any questions you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Jerome T. Schmitz".

Jerome T. Schmitz, P.E.
Vice President, Engineering Staff

/sms

Attachments

cc: Julie Williams
Catherine Mazzeo
Randy Gabe
Brad Harris

Mark Litwin
Amy Timperley
Kevin Lang



AUDIT AND INSPECTION SUMMARY

Control Room Management Audit and Inspection located in the Southwest Gas Headquarters.

This joint-audit and inspection, which covered Southwest Gas Corporation’s (“SWG’s”) Gas Control and Control Room Management was performed by Diana Fehling (Lead), Joseph Yoon (PHMSA), Daniel Adesina (PUCN), and Mike Bell (ACC).

AUDIT AND INSPECTION

- PHMSA reviewed the SWG Gas Control Department Policy/Procedure and SCADA Policy/Procedure and other applicable procedures and documentation; and
- Performed a site inspection of the SWG Control Room.

In reviewing the above items, inspectors utilized the PHMSA Control Room Inspection form.

FINDINGS

During this audit and inspection, PHMSA identified (16) Notice of Amendments and (8) Warnings. Those Notice of Amendment items and related responses are as follows:

Notice of Amendment:

1. §192.631 Control room management.

(a) ...

(b) ***Roles and responsibilities. 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:***

(1) A controller’s authority and responsibility to make decisions and take actions during normal operations

SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to adequately define the roles and responsibilities of its primary and secondary controllers. SWG’s Gas Control Department Policy (issue date – December 31, 2018, effective date – January 31, 2019), Section 2.0 “Roles and Responsibilities,” Subsection 2.1.2 identifies a primary and secondary controller. During the inspection, SWG explained that the day shift always has a primary controller and secondary controller on shift, while the night shift only has a primary controller. SWG further explained that during the day shift, both the primary and secondary controllers control the same assets from different consoles and are both logged into the SCADA system at the same time. Consequently, both the primary and secondary controller can issue commands and acknowledge alarms simultaneously.



Finally, SWG stated that sometimes the secondary controller becomes the primary controller when the primary controller must step away from the console. However, the policy fails to identify a maximum time the primary controller can step away from the console before an official shift change has to occur, or what situations the secondary controller will respond to or acknowledge alarms or issue commands while the primary controller is away from the console.

SWG must amend Section 2.0 “Roles and Responsibilities” to clearly explain the roles and responsibilities for both the primary and secondary controllers, including establishing a maximum time away from the console before a shift change must occur and listing what actions, if any, the secondary controller may take while the primary controller is not at the console. SWG’s revisions should also limit the number of simultaneous controller logins to each pipeline system and assign SCADA permissions to each individual to avoid potentially duplicative or conflicting commands.

Southwest Gas Response:

Southwest Gas acknowledges the need to clearly explain the roles and responsibilities of both the primary and secondary controllers, including establishing a maximum time away from the console before a shift change must occur and listing what actions if any, the secondary may take while the primary is not at the console. As such, Southwest Gas will review and enhance the procedures that detail the primary and secondary controller responsibilities and include a maximum time away from the console that will require a shift change. In addition, Southwest Gas will consider opportunities, if applicable, for potential SCADA permissions guidance to avoid duplicative or conflicting demands. Southwest Gas will review and update its policies and procedures by August 1, 2022.

2. §192.631 Control room management.

(a)...

(b) *Roles and responsibilities.* 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:

(1) ...

(3) A controller's role during an emergency, even if the controller is not the first to detect the emergency, including the controller's responsibility to take specific actions and to communicate with others;

SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG’s *Gas Control Department Procedures* (issue date – March 31, 2019, effective date – April 30, 2019), Section 1.0 “Roles and Responsibilities” fails to address how the system will be operated during an emergency event that requires evacuation. Page 1-5 states, “Redirect calls. Travel to South Operations Center and establish operations. Inform Gas Control Supervisor or designee prior to departure and upon arrival.” Despite the fact that the travel time to the South Operations Center, or backup control room, is approximately 25 minutes, the procedure does not explain the controllers’ roles and responsibilities during those 25 minutes. For example, during the day shift when both the primary and secondary controllers are on shift, do the roles and responsibilities of each controller vary during an



emergency event that requires evacuation? Additionally, if there is an emergency event at night that requires evacuation, who is responsible for monitoring the system during the 25 minutes of travel time, and what is his/her responsibilities for issuing commands and/or responding to alarms?

Further, once the controller(s) arrives at the South Operations Center, what roles and responsibilities does he or she have? Although SWG has the ability to operate or monitor their system from this remote location during an evacuation, its procedures fail to address it.

SWG must amend their procedures to address the roles and responsibilities of each controller during an evacuation to the back up control center and address the deficiencies outlined above.

Southwest Gas Response:

Southwest Gas agrees to amend procedures that address the roles and responsibilities of each controller during an evacuation to the backup control center and address system monitoring/operation responsibilities when one or more controllers are on shift during the evacuation. Southwest Gas will review and update its policies and procedures by August 1, 2022.

3. §192.631 Control room management.

(a)...

(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:

(1) ...

(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;**

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate procedure for conducting point-to-point verifications 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. SWG's *Gas Control Procedures* (issue date – March 31, 2019, effective date – April 30, 2019), Section 3.3 "SCADA Point to Point Verification" is inadequate and requires amendment to meet the requirements of §192.631(c)(2) and §192.631(e)(1). Specifically, SWG does not sufficiently address the following:

- Section 3.3.1 does not address scheduling point-to-point verifications should only logic be changed that affects points that can impact safety, regardless of whether a point is added or deleted. (For example, calculated points that display volumes such as station throughput and generate alarms that may require setpoint revisions due to logic versions, or valves that show an alarm condition when the proper commanded value has not been reached by a modified time);
- Section 3.3.1 does not address the condition for when a point that can impact safety is moved on a display, then the new position must be confirmed to be accurate for the process information;
- Section 3.3.1 does not indicate that all safety-related alarm setpoints along with alarm descriptors will be recorded along with all displays that have been verified;



- Section 3.3.4 does not indicate that the protocol-specific register list will include all points that can impact safety (at a minimum);
- Section 3.3.4 does not indicate that the value allowed range on the display matches or agrees with the range of the point value;
- Section 3.3.4 does not confirm how the value range for the input point is confirmed. While a single point value test is fine for leaving a location on analog values, this is not correct for an alarm state on digitals or logic driven points and associated responses. In addition, a single value test does not allow all safety-related alarm states or values to be checked through to the SCADA system nor sufficiently describe how this process will confirm that all descriptors have been checked; 2 and
- Section 3.3.4 assumes that the value is accurate for all ranges and that the display range and the range of the devices are correct. However, transmitters do not have a perfect curve and as such, the device should be calibrated through the full range, and the full range response confirmed to be accurate.

SWG must amend Section 3.3 “SCADA Point to Point Verification” to address the deficiencies outlined above and to clearly explain how point-to-point verifications will be conducted and properly documented.

Southwest Gas Response:

Southwest Gas agrees with the need to enhance its point-to-point verification policies and procedures. Due to the need for application configuration, training development and training completion, Southwest Gas will review and update its policies and procedures by December 31, 2022.

4. §192.631 Control room management.

(a)...

(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:***

(1) ...

(4) **Test any backup SCADA systems at least once each calendar year, but at intervals not to exceed 15 months;**

SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to develop an adequate procedure for testing any backup SCADA system at least once each calendar year, but at intervals not to exceed 15 months.

SWG’s *Gas Control Department Policy* (issue date – December 31, 2018, effective date – January 31, 2019), Section 4.0 “Required Procedures,” Subsection 4.4 “Secondary SCADA System Testing” paraphrases the regulation without providing any specifics on how the testing will be conducted.

SWG must develop an adequate procedure for testing any backup SCADA system. The procedure must include, at a minimum, adequate representative sampling of functions to be performed, verified, and documented during back-up operations.



Southwest Gas Response:

Southwest Gas acknowledges the importance to test any backup SCADA system to assure the safe operation of a pipeline facility. As such, Southwest Gas will enhance the procedure for testing any backup SCADA system and include representative sampling functions to be performed, verified, and documented during a backup operation. Southwest Gas will review and update its policies and procedures by August 1, 2022.

5. §192.631 Control room management.

(a)...

(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:

(1) ...

(5) Establish and implement procedures for when a different controller assumes responsibility, including the content of information to be exchanged.

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to establish and implement an adequate procedure for when a different controller assumes responsibility, including the content of information to be exchanged.

SWG's Gas Control Department Procedures (issue date – March 31, 2019, effective date – April 30, 2019), Section 3.0 "SCADA Operations," Subsection 3.1 "Change in Gas Controller" fails to indicate who is responsible for completing the shift change form. Furthermore, the shift change form fails to document that both the primary and secondary controllers are part of the shift change. Since the secondary controller is fully qualified and can step in and act as the primary controller when the primary controller temporarily leaves the console, the secondary controller must be included in the shift change procedure, including the documentation acknowledging both have received all the necessary information required during a shift change. Both controllers must be present, and part of the shift change process.

SWG must amend its shift change procedure to ensure that both controllers are part of the shift change, including documentation, as outlined above.

Southwest Gas Response:

Southwest Gas acknowledges the need to establish and implement a procedure for when a different controller assumes responsibility, including the content of information to be exchanged. As such, shift change procedures will be amended to ensure all controllers assuming the role are present, included during the shift change and associated documentation notes all have received the necessary information required during a shift change. Southwest Gas will review and update its policies and procedures by August 1, 2022.

6. §192.631 Control room management.

(a)...



(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:

(1) ...

(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;

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to develop an adequate procedure for identifying 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.

SWG's *SCADA Procedure* (Issued Date – May 29, 2020, Effective Date – June 30, 2020, Original Release Date), Section 1.0 "Alarm Management Plan," Subsection 1.6 "Required Reviews," Subsection 1.6.1 is code paraphrased without any specifics on how the monthly review will be conducted. Further, the procedure fails to require documentation to include the dates when points were taken off scan, inhibited, forced or manual values, the duration of the outage, or when the points were restored.³

³ Without recording this information, an operator cannot identify deficiencies and address them pursuant to the requirements in § 192.631(e)(6).

SWG must amend its "Alarm Management Plan" procedures identified above to include specific information and instruction on how the monthly reviews will be conducted, including documentation requirements.

Southwest Gas Response:

Southwest Gas acknowledges the need for additional detail within the procedure for identifying at least once each calendar month points that have been taken off scan, inhibited, generated false alarms, or that have had forced or manual values. Due to the need for application configuration, training development and training completion, Southwest Gas requests to review and update its policies and procedures by December 31, 2022, to permit sufficient time to develop adequate revisions.

7. §192.631 Control room management.

(a)...

(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:

(1) ...

(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;



SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to develop an adequate procedure for verifying 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.

SWG’s *SCADA Procedure* (Issue Date 5/29/20, Effective Date 6/30/20), Section 1.0 “Alarm Management Plan,” Subsection 1.6 “Required Reviews”, Subsection 1.6.2 states that Engineering Services will coordinate the verification and will “[p]rovide a list of all alarm limits and descriptions for safety related points to Division Operations for review and updates; [s]ubmit alarm limit updates to Gas Control; and [d]ocument the review in the problem and change application.”

During the inspection, when asked to provide a list of all safety-related alarm set points and alarm descriptions, the operator stated it could be found in Section 1.6.2. However, that information cannot be found in SWG’s procedure. It is unclear how the operator can conduct a verification without an actual list or database of these items.

SWG must amend the procedure to provide details regarding how they will conduct a verification of correct safety-related alarm set points and alarm descriptions, including a list of all alarm limits and descriptions to be utilized during this review.

Southwest Gas Response:

Southwest Gas agrees that additional details regarding how the annual Safety-related Alarm review is performed would be beneficial to explaining the process. However, because the specific details of each review changes from year to year as new technology and tools are utilized, the specific details do not belong in the Operations Manual, Policies and Procedures, but rather in the documentation created and retained for each annual review. Southwest Gas will review and update its procedures where applicable and enhance the associated documentation requirements by August 1, 2022.

8. §192.631 Control room management.

(a)...

(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:

(1) ...

(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;

SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to develop an adequate procedure for reviewing its alarm management plan at least once each calendar year, but at intervals not exceeding 15 months, to determine the effectiveness of the plan.



SWG's *SCADA Procedure* (Issue Date 5/29/20, Effective Date 6/30/20), Section 1.0 "Alarm Management Plan," Subsection 1.6.3 "Required Reviews" paraphrases the regulation and lacks any specific information or instruction, including metrics or criteria used to determine the effectiveness of the plan.

SWG must amend its procedure to clearly explain how the review will be conducted and what metrics will be used to determine the effectiveness of the plan.

Southwest Gas Response:

Southwest Gas agrees that additional details on how the annual Alarm Management Plan review is performed would be beneficial to explaining the process. However, because the specific details of each review changes from year to year as new technology, tools, and methods are utilized, the specific details do not belong in the Operations Manual, Policies and Procedures, but rather in the documentation created and retained for each annual review. Southwest Gas will review and update its procedures where applicable and enhance the associated documentation requirements by August 1, 2022.

9. §192.631 Control room management.

(a)...

(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:**

(1) ...

(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;**

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate procedure for conducting workload analyses that will assure controllers have sufficient time to analyze and react to incoming alarms. SWG's *Gas Control Department Procedures* (Issue Date: 03/31/19; Effective Date: 04/30/19; Superseded Date: 01/31/19), Section 4.7 "Workload Analysis" fails to provide any specific information or instruction for how the workload analysis will be conducted.

For example, the procedure fails to identify a clear process of measuring or monitoring the content and volume of general activity being directed to and required of each controller, including what criteria will be used to indicate acceptable controller performance (including primary and secondary controllers, as applicable) in response to alarms.

Additionally, the procedure fails to identify any workload threshold that would lead to adding controllers and/or consoles or taking other corrective measures to provide for effective controller response to alarms. Furthermore, the procedure fails to include all general activities performed by controllers and instead only focuses on alarms.

SWG must amend its procedures to address the deficiencies outlined above.

Southwest Gas Response:



Southwest Gas acknowledges the need for additional detail within the procedure for conducting workload analysis that assures controllers have sufficient time to analyze and react to incoming alarms. As such, Southwest Gas will amend its procedures to include information and instruction on how the yearly review will be performed and include the process for measuring/monitoring general activity, criteria for acceptable alarm response performance, and thresholds for corrective measures to be taken for effective controller response. Southwest Gas will review and update its procedures where applicable and enhance the associated documentation requirements by August 1, 2022.

10. §192.631 Control room management.

(a)...

(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:

(1) ...

(6) Address deficiencies identified through the implementation of paragraphs (e)(1) through (e)(5) of this section.

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate procedure to address deficiencies identified through the implementation of §192.631(e)(1) through (e)(5). SWG's *SCADA Procedure* (Issue Date 5/29/20, Effective Date 6/30/20), Section 1.0 "Alarm Management Plan," Subsection 1.6.5 "Required Reviews" only states that "Engineering Services and Gas Control will address deficiencies identified through the above reviews." The procedure fails to provide any information or instruction on how deficiencies will be identified, or criteria or guidelines for prioritizing the resolution and correction of deficiencies.

SWG must amend its procedures to adequately address how the company will identify and address deficiencies identified through the implementation of § 192.631(e)(1)-(5), including amendments to address the deficiencies outlined above.

Southwest Gas Response:

Southwest Gas agrees to enhance the policies and procedures for addressing deficiencies discovered through normal operations and the various periodic reviews. Southwest Gas will review and update its policies and procedures by August 1, 2022.

11. §192.631 Control room management.

(a)...

(f) Change management. Each operator must assure that changes that could affect control room operations are coordinated with the control room personnel by performing each of the following:

(1) ...

(2) Require its field personnel to contact the control room when emergency conditions exist and when making field changes that affect control room operations;



SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have procedures which require field personnel to contact the control room when emergency conditions exist and when making field changes that affect control room operations. For example, during the inspection, PHMSA reviewed SWG’s procedures for valve inspections, which failed to require field technicians to contact the control room prior to and upon completion of the valve inspection. The procedure fails to mention SCADA, control room, or controllers.

Additionally, while reviewing the procedure for pressure regulation inspection, PHMSA discovered that the procedure failed to require field personnel to contact the control room prior to and after completion of performing the inspection of the pressure regulators. The procedure fails to ensure that proper notification to the control room is made when testing includes field instruments and SCADA components used is overpressure protection.

SWG must review and amend any procedure that affects control room operations to ensure that field personnel contacts the control room when making field changes.

Southwest Gas Response:

All field devices visible in the Southwest Gas SCADA system (i.e., valves, pressure regulators, meters, etc.) are physically connected to SCADA through an RTU/PLC electronic device. Therefore, the requirement to contact Gas Control is written in Electronic Devices section of the Operations Manual when an inspection or maintenance is performed, as that electronic device is included in the maintenance of any of the associated field devices visible in SCADA. However, Southwest Gas agrees to include the notification of Gas Control requirement in the associated field devices inspection and maintenance procedures as well. Southwest Gas will review and update its policies and procedures by August 1, 2022, for all inspection and maintenance activities *except* valves. Southwest Gas is requesting additional time to complete the updates for valve activities so the revisions can be coordinated with the updates required for the new "Requirement of Valve Installation and Minimum Rupture Detection Standards" rule, which have an effective date of October 5, 2022.

12. §192.631 Control room management.

(a)...

(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.

SWG’s written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate procedure for reviewing the training program content to identify potential improvements at least once each calendar year, but at intervals not to exceed 15 months.

SWG’s *Gas Control Policy* (effective date 1/31/2019), Section 9 “Training,” Subsection 9.1.3 states: “The training program effectiveness will be reviewed annually, not to exceed 15 months.” This procedure paraphrases the regulation, and does not provide any information or instruction, including metrics or



criteria used to determine the effectiveness of the plan, or how a review of the training program content will be conducted to identify any improvements.

SWG must amend Section 9.1.3 to provide specific information and instruction on how the training content will be reviewed and what metrics or criteria will be used to determine if the training is effective, and if the training proves ineffective, how improvements will be identified and implemented.

Southwest Gas Response:

Southwest Gas acknowledges the need for adequate procedure detail to how the controller training program is reviewed for effectiveness. However, because of the dynamic nature of training information, effectiveness requirements, content, and delivery, the details do not belong in the Operations Manual, Policies, and Procedures but rather in a separate document and retained for guidance/compliance review. Southwest Gas will review and update its procedures where applicable and enhance the associated documentation requirements by August 1, 2022.

13. §192.631 Control room management.

(a)...

(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:

(1) ...

(5) ...

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate training program for training controllers to carry out the roles and responsibilities as defined by the operator, including elements covered under §192.631(h)(1) through (h)(5).

Southwest Gas's control room management procedures (Gas Control Policy, effective date 1/31/2019; Section 9) are inadequate to assure safe operation of a pipeline facility. Specifically, Southwest Gas failed to establish a controller training program that sufficiently incorporates the requirements set forth in § 192.631(h).

While SWG's training program generally states the training elements that will be covered, the program fails to explain in sufficient detail how controllers will be trained on these elements.

For example, the training program fails to identify how controllers will be trained (e.g., types of exercises), or how they will be evaluated (e.g., assigning pass/fail criteria for training elements), including specifying how many times a controller can retake any failed training element before additional training is required. Furthermore, the training fails to include details on stages or phases of the training program, including expected time frames to complete each stage.



SWG's *Gas Control Policy* (effective date 1/31/2019), Section 9 "Training," Subsection 9.1.3 states: "The training program effectiveness will be reviewed annually, not to exceed 15 months." This procedure paraphrases the regulation, and does not provide any information or instruction, including metrics or criteria used to determine the effectiveness of the plan, or how a review of the training program content will be conducted to identify any improvements.

SWG must amend Section 9.1.3 to provide specific information and instruction on how the training content will be reviewed and what metrics or criteria will be used to determine if the training is effective, and if the training proves ineffective, how improvements will be identified and implemented.

Southwest Gas Response:

Southwest Gas acknowledges the need for adequate procedures detailing how controllers will be trained. However, because of the dynamic nature of training information, effectiveness, content, and delivery, the details do not belong in the Operations Manual, Policies, and Procedures but rather in a separate document to demonstrate how controllers will be trained in accordance with 192.631 (h), including proficiency criteria for roles and responsibilities of a controller. Southwest Gas will review and update its procedures where applicable and enhance the associated documentation requirements by August 1, 2022.

14. §192.631 Control room management.

(a)...

(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. In addition, the training program must include the following elements:

(1) ...

(6) Control room team training and exercises that include both controllers and other individuals, defined by the operator, who would reasonably be expected to operationally collaborate with controllers (control room personnel) during normal, abnormal, or emergency situations. Operators must comply with the team training requirements under this paragraph by no later than January 23, 2018.

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have an adequate procedure for conducting team training exercises. SWG's *Gas Control Policy* (effective date 1/31/2019), Section 9 "Training," Subsection 9.1.2 states, "Team Training will be provided at a frequency of every 3 years to Gas Controllers and those who operationally collaborate with the Control Room during normal, unusual, and abnormal operating conditions. Team training will include lessons learned from company, historical or other gas-industry events. Those who operationally collaborate with Gas Controllers include [those who] [w]ork jointly with Gas Controllers during normal operations, unusual operating conditions, and abnormal operating conditions; [and those who] [c]ommunicate information to the Control Room that influences pipeline operations."



Control room team training and exercises are intended for controllers and other individuals who usually provide key information or decision-making input or otherwise influence operational control.⁷ To properly conduct team training, the operator must identify those personnel who are required to participate in team training. SWG's procedure failed to identify the personnel either by role, title, or other means to ensure adequate personnel participation in team training. Furthermore, the procedure does not provide specific information or instruction on how team training will be conducted and documented.

SWG must amend its procedure to address the deficiencies outlined above. PHMSA strongly encourages SWG to review PHMSA's Frequently Asked Questions associated with Team Training before amending its procedure.

Southwest Gas Response:

Southwest Gas acknowledges the need to ensure team training is provided for controllers and other individuals who usually provide key information or decision-making input or otherwise influence operational control. As such, Southwest Gas will amend its procedure to provide adequate detail of those required to participate in team training and how team training will be conducted/documented by August 1, 2022.

15. §192.631 Control room management.

(a) General.

(1) This section applies to each operator of a pipeline facility with a controller working in a control room who monitors and controls all or part of a pipeline facility through a SCADA system. Each operator must have and follow written control room management procedures that implement the requirements of this section...

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have written control room management procedures that incorporated the requirements of § 192.631(i). Pursuant to §192.631(i), upon request, operators must submit their procedures to PHMSA or, in the case of an intrastate pipeline facility regulated by a State, to the appropriate State agency.

During the inspection, PHMSA reviewed SWG's *Gas Control Policy* and *Gas Control Procedures* (effective date 1/31/2019, and 4/30/2019, respectively), both of which failed to expressly include this requirement.

SWG must amend its procedures to expressly include the requirements set forth in § 192.631(i).

Southwest Gas Response:

Southwest Gas agrees to amend its policies and procedures to express continued compliance with §192.631(i). Southwest Gas will review and update its policies and procedures by August 1, 2022.



16. §192.631 Control room management.
(a) General.

(1) This section applies to each operator of a pipeline facility with a controller working in a control room who monitors and controls all or part of a pipeline facility through a SCADA system. Each operator must have and follow written control room management procedures that implement the requirements of this section...

SWG's written procedures are inadequate to assure the safe operation of a pipeline facility.

Specifically, SWG failed to have written control room management procedures that incorporated the requirements of § 192.631(j)(1). Pursuant to §192.631(j)(1), an operator must maintain for review during inspection records that demonstrate compliance with the requirements of § 192.631.

During the inspection, PHMSA reviewed SWG's Gas Control Policy and Gas Control Procedures (effective date 1/31/2019, and 4/30/2019, respectively), both of which failed to expressly include records retention requirements.

SWG must amend its procedures to expressly include the requirements set forth in § 192.631(j)(1).

Southwest Gas Response:

Southwest Gas agrees to enhance its policies and procedures to address record retention requirements. Southwest Gas will review and update its policies and procedures by August 1, 2022.