

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking on the
Commission's Own Motion to Adopt New
Safety and Reliability Regulations for Natural
Gas Transmission and Distribution Pipelines
and Related Ratemaking Mechanisms.

Rulemaking 11-02-019
(Filed February 24, 2011)

**FIRST AMENDMENT TO PACIFIC GAS AND ELECTRIC
COMPANY'S GAS SAFETY PLAN**

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Dated: August 24, 2012

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Pursuant to the Ruling of the Assigned Commissioner Setting Schedule for Comments on Safety Plans, Granting Unopposed Motion to Move Exhibit Into Record, and Adopting Procedures for Commission Consideration of Request to Lift Operating Pressure Limitations on Line 131-30 (Ruling), issued on July 20, 2012, Pacific Gas and Electric Company (PG&E) respectfully submits a First Amendment to its Gas Safety Plan, filed on June 29, 2012.

As directed in the Ruling, PG&E's First Amendment to its Gas Safety Plan addresses the concerns expressed by California Assembly Member Jerry Hill regarding coordination and supervision of PG&E's in-line inspection contractors. PG&E's First Amendment consists of a new Appendix C to its Gas Safety Plan, along with an introductory letter from Nickolas Stavropoulos, PG&E's Executive Vice President, Gas Operations.

Respectfully Submitted,

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By: _____ /s/
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August 24, 2012

Before the Public Utilities Commission of the State of California
Rulemaking 11-02-019
(Pacific Gas and Electric Company ID U 39 G)

Re: Pacific Gas and Electric Company's Gas Safety Plan

Dear Executive Director Paul Clanon:

On behalf of Pacific Gas and Electric Company (PG&E), I am pleased to submit this update to PG&E's Gas Safety Plan. Our Gas Safety Plan and this appendix provide a comprehensive overview of our efforts to make our natural gas pipelines the safest and most reliable in the country.

Our plan was filed on June 29, 2012 in accordance with Decision 12-04-010 to fulfill the requirement of Public Utilities Code §§ 961 and 963 to address Senate Bill 705.

This appendix addresses Commissioner Florio's Ruling R.11-02-019 due no later than August 24, 2012. The ruling directs gas utilities that employ in-line inspection tools to amend their Safety Plans to address concerns regarding coordination and supervision of in-line inspection contractors.

Safety is our first priority and our long-term goal is to become the nation's safest gas utility. We've made significant progress in moving towards this goal and we are absolutely committed to achieving our goals for our customers and for the natural gas industry.

We welcome the opportunity to discuss this appendix and our previously filed Gas Safety Plan with you and CPUC staff.

Sincerely,

Nick

cc:

Administrative Law Judge Meredith A. Bushey

Assigned Commissioner Michel P. Florio

President Michael R. Peevey

Commissioner Mark J. Ferron

Commissioner Catherine J.K. Sandoval

Commissioner Timothy A. Simon

Consumer Protection and Safety Division Director General Jack Hagan

Service List R.11-02-019 (Order Instituting Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Rulemaking Mechanisms)

APPENDIX C

PG&E GAS SAFETY PLAN

APPENDIX C

PG&E RESPONSE TO QUESTIONS FROM ASSEMBLYMAN JERRY HILL REGARDING THE NTSB FINDINGS IN THE MICHIGAN PIPE RUPTURE

BACKGROUND

PG&E's Gas Safety Plan, filed June 29, 2012, is a living document, and will include continuous improvements, including learning and incorporating lessons from others. On July 10, 2012, the National Transportation Safety Board (NTSB) issued safety recommendations after completing its investigation of the Enbridge oil pipeline rupture in Michigan¹. The NTSB recommendations include revising Enbridge's integrity management program; establishing semiannual control center training; changing leak detection processes; and, providing additional training to first responders and updating emergency response procedures and plans (Attachment 1).

Shortly following the publication of NTSB's recommendation on the Enbridge incident, PG&E began to review the findings to determine what lessons could be learned. On July 10, 2012, Assemblyman Jerry Hill sent a letter to PG&E expressing specific concerns regarding findings by the NTSB about the in-line-inspection (ILI) contractors and asked PG&E to respond to those concerns (Attachment 2). On July 20, 2012, the Commission directed the utilities to amend their Gas Safety Plans by August 24, 2012 to address Assemblyman Jerry Hill's concerns. On July 27, 2012, PG&E responded to Assemblyman Hill (Attachment 3).

Though the regulations covering liquid pipelines (49 CFR Part 195) may have different and separate requirements from natural gas facilities (49 CFR Part 192), there are many operating lessons and actions that can be taken from the incident².

This appendix specifically addresses Assemblyman Hill's questions on ILI contractors, as well as other issues identified by the NTSB. It is separated into four categories: 1) Integrity Management, 2) In-Line-Inspection, 3) Control Centers, and 4) Emergency Response and Public Awareness. Further revisions and/or additions to PG&E's Gas Safety Plan will be incorporated once PG&E and the Gas Transmission Pipeline Industry have fully reviewed, understood and incorporated lessons learned from the Michigan incident.

1. Integrity Management

PG&E has embarked on a complete review of its transmission integrity management program to enhance its effectiveness and improve public safety and system reliability. This program review is a collaborative effort with risk assessment and integrity management experts to assess PG&E's integrity program policies, procedures and tools. PG&E has been working closely with these experts to ensure that PG&E's updated integrity management program meets all regulatory requirements and utilizes industry accepted best practices. Updated procedures resulting from these efforts will be available by the end of August 2012.

¹ Enbridge Incorporated Hazardous Liquid Pipeline Rupture and Release, Marshall, Michigan, July 25, 2010, National Transportation Safety Board Accident Report NTSB/PAR-12/01.

² NTSB Recommendation P-12-8, pg. 123.

Organizationally, PG&E has established a team solely focused on the integrity of the Utility's gas transmission assets.

PG&E has completed or is undertaking the following actions to enhance its Integrity Management Program:

a. Revised Risk Model and Integrity Management Program

PG&E updated its risk model to support the 2011 "Baseline Assessment Plan" (BAP) in March 2012. This work is performed at a minimum of once per year and is based on updated High Consequence Area (HCA) analysis and risk assessment performed on data collection through the end of 2011. This revision included changing the weighting of the risk factors of the existing threats in the risk algorithm to better reflect risk and threats related to long seam information and historical leak records. The updated long seam and leak record information was based on the extensive data collection performed as part of the MAOP Validation Project and feedback from industry integrity experts. After review by PG&E's Threat Steering Committee, the revised risk model was approved and the associated Risk Management Procedures were updated to reflect these changes.

Even with that milestone complete, improvements continue. PG&E will further develop its risk model to improve consideration of stress corrosion cracking, internal corrosion, equipment failure and incorrect operations as threats in the overall risk algorithm. PG&E expects to complete this work in 2012 and publish the results in the 1st quarter of 2013 as part of the 2012 risk assessment.

b. Information Systems To Ensure All Applicable Threats Are Adequately Addressed

PG&E is working to improve system records and work management systems to fully integrate the use of pipeline system as-built and maintenance information into the Transmission Integrity Management Program. A key initiative included in PG&E's Pipeline Safety Enhancement Plan (PSEP) submitted to the CPUC on August 26, 2011, is the Gas Transmission Asset Management Plan (GTAM)³. The project establishes a technology infrastructure that supports enhanced business processes to ensure data reliability is maintained and enables improved decision-making capabilities related to the risks and integrity of the gas transmission system. By completing the four primary objectives, PG&E will ensure it has the complete and accurate pipeline information necessary to establish and sustain an effective GIS and data process for PG&E's integrity management program.

The four primary objectives of the project:

- Asset data (location/connectivity, specification/features, and maintenance/inspection history) is tracked, managed, and stored using a technique called linear referencing. This is a best practice for viewing/analyzing pipeline features, characteristics, and event history relative to specific reference points along the entire length of gas transmission pipelines.
- Materials are tracked in a traceable chain from receipt by PG&E through the operating life of the component. Key features that would be tracked include the manufacturer, characteristics of the component, manufacturer ratings, and factory test results.

³ The Gas Transmission Asset Management plan or GTAM was recently renamed "Mariner." A corresponding Gas Distribution Asset Management plan is known as "Path Finder."

- Work management and data capture pertaining to maintenance and inspection processes (including Locate and Mark and Leak Survey) are more efficient, accurate, timely, and complete with rigorous quality assurance embedded. This will be accomplished by eliminating paper-based maintenance and inspection work processes and implementing automated work processes that manage Leak Survey, Locate and Mark, and preventative/corrective maintenance work. The changes span many areas of work from scheduling of work, field capture of information and verification/quality review of field captured data, through updating of the core systems.
- Tools are in place that enable integration of all underlying asset data (including event history such as leaks, dig-ins, etc.) to provide the full picture of asset health and condition with ability to perform risk and integrity analytics.

The implementation schedule for the project includes a series of four distinct phases over a period of approximately 3.5 years (4th quarter of 2011 through 1st quarter of 2015).

c. Revised Threat Identification Procedures

As discussed earlier, PG&E has engaged industry experts to assist in creating new threat identification procedures for the following threats:

- Manufacturing
- Construction
- Internal Corrosion
- Stress Corrosion Cracking
- Fatigue (including cyclic fatigue)
- Interacting Threats (including fatigue)

Updates are being integrated into PG&E's Transmission Integrity Management Program by the end of August 2012 with implementation to be performed in 2012-2013.

d. Improved Self-Assessment Metrics Regarding Pipeline Integrity Evaluations

Another aspect of PG&E's Transmission Integrity Management Program is an evaluation of PG&E's performance. The goal is to ensure that PG&E is meeting its regulatory obligations, including adherence to ASME B31.8S guidelines as well as providing recommendations for: (1) improving PG&E's self-assessment metrics utilized to evaluate whether the program is effectively assessing threats, and (2) evaluating the integrity of each covered pipeline segment. PG&E's consultants will be issuing recommendations in 2012 with implementation to be performed in 2012-2013.

2. In-Line-Inspection

PG&E's In-Line-Inspection (ILI) program is part of the overall Transmission Integrity Management Program. While the majority of the system cannot currently accommodate ILI (smart pigging) devices, efforts are underway to increase the number of segments in the system that are capable of being inspected by in-line inspection tools. These efforts to make the system more piggable will enable PG&E to leverage existing and future advances in ILI technology.

a. In Line Inspection Contractors

As follow up to the NTSB report on the Michigan incident, PG&E directed its ILI contractor, PII Pipeline Solutions (PII), to provide its response to the NTSB findings along with a specific action plan to address those findings. PG&E is committed to

working with PII to ensure appropriate controls are in place so the same issues do not emerge in work performed by PII, or other ILI contractors hired by PG&E. PG&E recognizes it is responsible for ensuring work performed by its contractors meets internal performance standards, which require all work be performed safely according to industry established best-practice procedures.

The contract between PG&E and PII (as well as any other ILI contractor) contains a detailed specification relating to ILI data. The contract also puts into place a thorough review process of the draft vendor ILI data and report prior to acceptance by PG&E. PG&E's contract specification has been modified and improved as PG&E has gained additional experience and it will continue to identify improvement opportunities.

PG&E project managers and engineers are in frequent contact with ILI vendors. They work together in the field during the inspection process, discuss the analysis of the ILI data, and work together to review the final ILI report. Typically, the ILI vendor and PG&E project managers and engineers meet in person to review the results of the ILI and address any questions or concerns regarding the inspection and data analysis. This ongoing communication ensures a complete and comprehensive report.

b. ILI Contractor and PG&E Communications and Collaboration

PG&E's engineering staff is an integral part of the entire contract process as well as the inspection and analysis process. PG&E's engineering staff plays a key role in determining the scope of the work to be done, and completing a thorough pre-assessment phase which defines the scope and tool selection. PG&E works side-by-side in the field with the ILI vendors during the inspection and communicates regularly with the vendors during the analysis and reporting phase.

PG&E Integrity Management procedures and contracts with ILI vendors require an evaluation of the ILI draft vendor report before acceptance. Additionally, PG&E engineers and the ILI vendor's analyst work collaboratively to understand findings based on the inspections and the analyst's evaluations. This ongoing interaction is integral to ensuring full understanding of the work performed.

PG&E's ILI contracts require a 60 or 90 day turnaround for reports following the date of inspection. As this deadline approaches, PG&E actively communicates with the ILI vendor to determine the expected date of completion for the ILI report. This diligence enables PG&E to meet the 49 CFR Part 192, Subpart O requirement that operators declare discovery of a condition within 180 days of completion of an assessment. For ILI, the completion date is the date of the final run in a series of inspection runs for the ILI project; PG&E has always met this Subpart O requirement.

c. Threat Analysis with ILI Data

ILI contractors perform the inspections, analyze the data that comes from those inspections, and provide reports containing sizing and classification for all anomalies detected. The successful performance of an in-line inspection begins with PG&E defining inspection goals, objectives and pipeline characteristics for ILI contractors. ILI tool tolerances are incorporated into the analysis of identified anomalies to ensure conservative results and findings.

PG&E's Specification for ILI is included in every ILI contract and it clearly defines the types of anomalies that PG&E prioritize as "immediate." All ILI vendors are required to notify PG&E promptly when any anomaly meeting the criteria for an "immediate"

condition is identified. The definition of what qualifies as an “immediate” anomaly is communicated to the ILI vendors orally and is stated within the contract terms.

To ensure the criteria is being appropriately applied to the data, PG&E engineers use the ILI data provided by the vendor to evaluate the “immediate” anomalies, as well as all categories of anomalies found. From there, the engineers develop plans to address the findings based on the nature and categorization of the anomalies.

The Transmission Integrity Management Program (TIMP) considers all data points (ILI data, operating pressures, cathodic protection history, etc.) for a specific pipe segment and then utilizes that information to determine a holistic view of the threats. Anomaly response plans, or "dig plans," are reviewed and approved by both the PG&E supervising engineer and the (TIMP) manager.

d. Interactive Threats

PG&E is engaged in a comprehensive evaluation of its Integrity Management procedures. PG&E has employed nationally recognized experts in the field of integrity management to assist in identifying areas of improvement.

Currently, PG&E is in the midst of implementing an updated threat identification process for all nine threat categories⁴ including the interactive threat of fatigue. Improvements are being made to existing procedures and PG&E is creating a new procedure for threat identification, which is expected to be completed by the end of August 2012. These improvements will ensure that PG&E determines risk for all nine threat categories, evaluates fatigue interactions and uses an additive approach for evaluating interactive risks.

These efforts reflect the requirements of the Integrity Management regulations 49 CFR Part 192, Subpart O, which require operators of natural gas pipelines in HCAs to identify and evaluate all potential threats (to pipeline integrity) to each covered segment. Potential threats that must be considered include, but are not limited to, the nine threats listed in ASME-B31.8S-2010. In addition to these individual threats, it has been suggested that operators also consider the potential for threats to interact to create potentially more severe conditions than would be indicated by only one of the threats acting alone.

The topic of interactive threats is an ongoing discussion and debate within the industry. There are several research projects underway to assist operators in developing better plans for addressing them. PG&E is currently a sponsor for the Gas Technical Institute’s interactive threats research project. When results of this research are available, the findings and recommendations will be incorporated into PG&E’s risk assessment processes, as part of its continuous improvement effort.

e. Risk Algorithms

PG&E’s new risk algorithms include an updated threat identification process that incorporates the interactive threat of fatigue. Crack-like anomalies are evaluated and those identified as requiring action are promptly remediated through repair or replacement. As stated above, PG&E continues to work with others in the industry to evaluate and better understand the impacts of interactive threats and to drive industry

⁴ The nine threat categories include: external corrosion; internal corrosion; stress corrosion cracking; incorrect operations; third party damage; equipment failure; weather and outside force; manufacturing threat; and construction.

improvements to ensure alignment of its risk assessment program in the area of threat analysis and interactions.

3. Control Centers

a. Training

As part of a larger effort to meet the DOT PHMSA Control Room Management (CRM) Rule, PG&E's Gas Control has finalized a complete re-write of the Gas System Operator training program. The new training program has been converted to an apprenticeship program and is certified under the State of California. PG&E's Gas Control will begin using the new apprenticeship program to train new hires beginning in September 2012.

In accordance with meeting the rule, PG&E has modified its SCADA system to display alarm priorities and responses. Control Room personnel have been trained to acknowledge and respond to alarms based on the new priority scheme (Emergency, High, Medium, Low).

PG&E established and implemented a 911 Notification Process pursuant to which Gas Control notifies the appropriate 911 agency when identified operational or field conditions occur based on SCADA alarms. All control room personnel have been trained on the process.

Control room personnel training is continuous throughout the calendar year. All new or remodeled remotely controlled facilities require training for each operator on any new SCADA functionality. Large compressor station remodels require training on new functionality for each operator, the local field crew, and the facility station engineer.

PG&E holds numerous emergency exercises/drills in all local areas throughout the year. Gas Control participates in the Emergency Drills simulating the normal control room function, including established communication protocols and required responses to SCADA alarms.

b. SCADA Improvements

PG&E is implementing three significant projects that will expand the current SCADA capability to predict and proactively manage abnormal events on its transmission and distribution system:

- Automated Valve Program implementation
- OSIsoft PI Data Historian integration with SCADA and GIS
- Distribution Control Center creation

These projects are the foundation of the broad initiative PG&E has undertaken to build a comprehensive controls framework to move from monitoring and reactive, to predictive and proactive.

Refer to Section F of PG&E's Gas Safety Plan for additional information.

PG&E has requested vendor support to evaluate the use of a leak/rupture detection system in concert with its SCADA system. PG&E and the vendor have proposed a comprehensive leak sensitivity study be conducted. The study shall determine the smallest size leaks that can be detected, the accuracy of isolating the leak location, and assess the speed and fidelity at which a leak can be detected on the system during real-time simulation.

PG&E, in tandem with evaluating leak/rupture detection systems, will continue installing automated isolation valves equipped with an alarm indicating rapid pressure drop

beyond the expected threshold. PG&E is exploring expanded use of alarms that indicate pressure drop over time on a portion of its Class 3 backbone transmission. If the pilot proves successful, PG&E will build an implementation plan for expanded use across its system in the 4th quarter of 2012.

4. Emergency Response and Public Awareness

PG&E has applied the lessons learned from the San Bruno incident to improve its emergency response plans. These include:

- Improving internal procedures
- Changes to organizational structure
- Establishing clear responsibility and accountability during emergencies
- Greater collaboration with first responders
- Broadening training activities

PG&E's Public Awareness Plan addresses the need for communication about pipeline safety to key stakeholders and incorporates a process to ensure that PG&E continuously improves the effectiveness of its program. On an annual basis, PG&E conducts an internal self-assessment of its Public Awareness Plan. This assessment evaluates whether the Plan is implemented according to API RP-1162 (Public Awareness Programs for Pipeline Operators) and how effectively the Plan is reaching key stakeholders. In response to the assessment, PG&E develops an action plan to make changes and improvements to the program.

The Emergency Preparedness team within Public Safety and Integrity Management is actively engaged in various facets of emergency preparedness planning. Responsibilities of this team include maintenance of the Gas Emergency Response Plan (GERP); GERP assists PG&E personnel in responding safely, efficiently and in a coordinated manner to emergencies affecting the gas transmission and distribution systems. The GERP outlines the roles and responsibilities of PG&E's emergency response personnel and includes a single person that assumes command and designates specific duties for SCADA staff and all other potentially involved company employees.

The GERP requires training and exercises to ensure its response procedures are effectively put into action should an emergency occur. Training activities include: read-through exercises; table-top exercises; games; drills; and functional and full scale exercises. Annual events include joint exercises involving PG&E personnel and public first responders for each gas storage and gas regulation facility, and exercises at each of PG&E's 18 divisions. Gas Dispatch, Gas Control and PG&E Emergency Response personnel train on dispatch and emergency response procedures annually. Additionally, PG&E personnel with a role in an emergency operation train on the GERP. Completed training activities include:

- Exercises with public officials and first responders to simulate gas curtailment scenarios and build understanding of how to prepare for potential events
- Educational and interactive sessions, including practice drills, with first responders to prepare for gas-related emergencies
- First responder pilot training program with the City and County of San Francisco and the City of Fremont focused on sharing critical emergency response information
- Incident Command System training (This training is an ongoing effort and PG&E is currently improving controls to continually identify employees required to complete the training)
- California Independent System Operator (CAISO) Gas Curtailment Exercise

In addition to the work PG&E has done internally, it has expanded its outreach to first responder agencies. PG&E created eight new positions to interface directly with local and state first responders. These Senior Public Safety Specialists, several of whom are former fire service first responders, provide training and workshops on PG&E's new plan to first responder agencies throughout PG&E's service territory. PG&E also developed a secure emergency responder web portal that provides first responders access to local pipeline characteristics information and free training resources. Once registered in PG&E's web portal, a first responder will have access by county to local gas transmission pipeline information (location of line segment, valve location, maximum operating pressure, line size, line type). PG&E is also reaching out to the public, proactively contacting community leaders, local government officials, schools, and agricultural and rural community members to inform them about the educational materials and tools that are available to them regarding PG&E's natural gas pipeline system and potential hazards. Other emergency preparedness activities have included:

- Developing a contact list for all local first responders (~1,800) to improve communications and notifications
- Providing maps, GIS data, and other pipeline information to first responders
- Establishing and implementing a 911 Notification Process in which Gas Control notifies the appropriate 911 agency when identified operational or field conditions occur

PG&E's actions and initiatives addressing emergency response have improved its procedures, preparation, command structure and coordination with first responder agencies. While the first priority is prevention, PG&E has and continues to do the work that will ensure an effective and coordinated response should an emergency event occur.