PACIFIC GAS AND ELEC TRIC COMPANY CHAPTER 13

ENHANCED FOCUS ON PU BLIC SAFETY AND OPER ATIONAL EXCELLENCE

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CHAPTER 13 ENHANCED FOCUS ON PUBLIC SAFETY AND OPERATIONAL

A. Introduction

Since the San Bruno accident, PG&E has made, and is continuing to make, significant improvements to increase its focus on public safety and operational excellence. Change does not happen overnight. This testimony provides an overview of our actions to date, and our extensive plans to make improvements within gas operations and across the Company. In Appendix A, we respond to each of CPSD's specific recommendations and explain how we are implementing the recommendation or, if we disagree with it, why it should not be implemented. The improvements that have been, or will be, reviewed by the Commission in pending or upcoming filings are:

EXCELLENCE

- In our currently pending Pipeline Safety Enhancement Plan (PSEP) in R.11-02-019, we have proposed gas transmission pipeline strength testing, pipeline replacement, pipeline retrofitting to accommodate the use of In-Line Inspection (ILI) tools, valve automation, enhancements to the Supervisory Control and Data Acquisition (SCADA) system, pipeline records integration, as well as interim safety enhancement measures to be implemented prior to the strength testing or replacement of pipelines. PSEP was reviewed in hearings during March of this year and has recently been submitted to the Assigned ALJ for a proposed decision later this summer.
- On June 29, we expect to file our Gas Safety Plan pursuant to Senate Bill (SB) 705 and CPUC Decision No. 12-04-10. As required by SB 705, we have developed a plan that is consistent with best practices in the gas industry and with federal pipeline safety statutes.
- In early July, we expect to submit our 2014 General Rate Case (GRC)
 Notice of Intent (NOI), followed by the 2014 GRC Application later this year.

 Among other things, the GRC will describe accomplishments and planned improvements to our gas distribution operations. For the first time ever in a GRC, the CPSD will hire third-party experts to perform technical reviews of certain operational plans underlying our forecast including gas operations to determine whether they adequately address safety concerns.

B. Gas Operations Foundational Improvements

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1. Organizational Improvements and Staffing Enhancements

After San Bruno, we identified the organization and structure of the gas business as the first key area for improvement. We clarified roles and responsibilities, provided more effective governance, and established an organizational structure that will facilitate process improvements.

The first step — taken in 2011 — led to separate divisions for gas and electric operations and designated separate Executive Vice Presidents to lead each business unit. To provide enhanced focus on key parts of operations and in order to achieve clearer roles and responsibilities and to better support our work and safety goals, the new Gas Operations organization was structured around eight distinct functions.

The eight functions with corresponding organization names include:

- Defining the assets and the associated attributes of each (data and records management) – "Asset Knowledge Management."
- Defining the safety requirements, standards, and regulations that we follow
 "Standards and Policies."
- Reviewing the assets to identify their safety condition, degradation threats, and defining actions necessary for continued safe operation (integrity management) – "Public Safety and Integrity Management."
- Engineering and designing assets to address safety and improvements –
 "Project Engineering and Design."
- Establishing resource plans and relative priorities "Investment Planning."
- Executing the transmission work in the field efficiently and effectively (performing construction, maintenance activities) "Transmission."
- Executing the distribution work in the field efficiently and effectively (performing construction, maintenance activities) "Distribution."
- Operating the facilities in a safe and reliable manner (monitoring safe system performance and operations and emergency response) – "Gas System Operations."

The second key change for the Gas Operations organization was to put in place a leadership team with extensive industry expertise and to increase the size of the work force where needed to implement the organization's enhanced focus on safety and operational excellence. This required us to identify resource needs and then to recruit and hire trained professionals from throughout the industry to augment the existing workforce. Our existing workforce of gas professionals was joined by people from outside the company with extensive industry experience. A few examples of these include:

Executive Vice President of Gas Operations from National Grid.

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- Senior Vice President of Gas Transmission Operations, Engineering and Pipeline Integrity from El Paso Corporation.
- Vice President of Public Safety and Integrity Management from El Paso Corporation.
 - Vice President of Investment Planning from El Paso Corporation.
- Vice President of Distribution Maintenance and Construction from National Grid.
 - Senior Director of Gas System Operations from Vista Energy Solutions.
 - Director of Distribution Engineering and Design from Trans Canada.
 - Director of Transmission Operations and Maintenance from PHMSA.
 - Director of Transmission Integrity Management Program from El Paso Corporation.

In addition to augmenting the Gas Operations leadership team with these experienced industry experts, our Gas Operations organization has hired more than 300 new employees since January 2011. Through 2014, we expect to hire an additional 1,400 employees.

These employees will respond to emergencies, perform leak surveys and leak repairs, replace unreliable pipe, install new infrastructure, perform critical quality assurance and quality control functions, do investment planning work, and handle other functions critical to providing best in class, safe, and reliable natural gas service.

2. Quality and Improvement

 We are increasing the focus on quality starting with the recent formation of a dedicated Quality & Improvement (Q&I) department within Gas Operations. The Q&I department is responsible for centralized Quality Control (QC), Quality Assurance (QA), and Work/Human Performance Improvement (W&HPI) activities.

The QC activities include performing random quality verifications through field assessments of completed work. We currently have three fully operational QC programs for Leak Survey, Leak Repair, and Locate and Mark. The program is being expanded to include other work functions such as Work Verification (Re-Dig). Under this program, we will be conducting a post-installation "re-dig" shortly after installation or repair work is completed to verify the work performed on the buried facility is compliant with governing standards and work practices. This effort also includes a quality evaluation of the documentation supporting the field work.

The QA activities include performing quality reviews upstream of completed work to provide assurance of a quality end product. QA reviews include audits of PG&E's processes and programs.

The W&HPI activities provide an independent review of information, incidents, and events in order to recommend human performance improvements.

3. Training

We are increasing our emphasis on training our employees through the Gas Training Improvement Project. As part of this project we have identified best in class training practices in the industry. With the assistance of a third party consultant, PG&E conducted a comprehensive benchmark study that included phone interviews and site visits with other gas utilities. As a result of the study we are:

- Creating a business process index to align codes and standards with the tasks and roles of employees. This will allow Gas Operations to confirm that it has guidance documents and training for all work performed.
- Developing training and evaluation programs that support all Gas
 Operations employees throughout their career.

- Prioritizing training development and delivery for all of Gas Operations, rather than individual departments.
 - Broadening the scope of technology solutions and leveraging curriculum external to PG&E.
 - Creating an end-to-end instructor excellence program that includes recruiting, hiring, and retention; as well as training, observation, and a continuous improvement process.

We have identified close to 100 courses that require development or significant expansion from 2012 to 2016. These include training courses for: emergency response (agency, employee, and public); field personnel training; locate and mark; new gas service representative training; operator qualification; In-Line Inspections; supervisor technical training; and valves. Specific courses for areas including, but not limited to, an annual skills refresher, gas emergency response plan, remote control valves, and ultrasonic meters are also part of the Gas Training Improvement Project.

As set forth in our 2014 GRC, PG&E is also building a new gas operations training center that will allow the Company to provide technical skills training to maintenance, construction, operations, and engineering employees. This facility will expand our existing hands-on simulation training in areas such as carbon monoxide and leak investigation, "pigging" lines, conducting hydrostatic tests, repair techniques, and system and asset maintenance. Construction of the new facility begins this year and is scheduled to be completed in 2015.

4. Standards and Procedures

One of the goals in restructuring the organization was to create greater centralized control over standards, procedures, and systems while maintaining decentralized work execution. Gas Operations currently has over 1,000 guidance documents that define the standards, work methods, procedures, and specifications that are used across the gas organization. The documents have been developed over a period of many years.

We are first concentrating on updating our process for creating standards, work methods, and procedures with a focus on improving how we get input and feedback from all affected parts of the organization. We are also staffing with subject matter experts who will be primarily focused on creating and

documenting consistent standards and procedures for performing work. We are developing one and three-year plans for creating and/or updating gas guidance documents.

Some of the key inputs to this plan are improving public and employee safety, incorporating changes due to new codes or regulations, improving performance based on new technology, best practices, or employee suggestions, and incorporating feedback from improved quality assurance/quality control processes or other audits.

Finally, we are developing new methods for training and communication and will be employing technology to improve the delivery and availability of current procedures for employees using a mobile electronic document delivery system.

5. Employee Engagement and Feedback

 Letting employees know that their ideas and opinions count is an important step in improving safety and operational performance. Our Gas Operations officers have led the effort to solicit employee feedback and make employees feel comfortable sharing their feedback. At the outset of his job with PG&E, the new Executive Vice President, Nick Stavropoulos, met with field employees to find out from them what they think PG&E is doing well and what they think could be done better. Those meetings continue to this day. Mr. Stavropoulos expects all of us on his leadership team to solicit and act on employee feedback as part of ongoing operations. Gathering information from the bottom-up allows us to make improvements to our gas operations -- from updating technical policy documents to targeting investment to further reduce risk.

All efforts to improve processes, procedures, tools, or policies will incorporate employee engagement and feedback. The following are several examples of ways we have used or will use employee feedback:

- Selection of new tablet computers that are tailored to gas employees.
- Selection of new gas crew trucks by employees who use them extensively today.
- Training curriculum and training facility benchmarking was performed by a team of management and union represented employees.

 The Q&I organization is creating a web based application through which employees can share their ideas about operational issues that will be tracked and reviewed.

C. Gas Safety Work Accomplishments And Future Plans

In the prior section, I described the foundational improvements for Gas Operations. Those improvements – organizational changes, staffing, quality and improvement, training, procedures as well as the solicitation of employee feedback – are not an end in themselves. They will help us improve our performance of the work necessary to operate the gas system safely.

We have already taken action to improve, as illustrated in the most recent status report provided to the NTSB on May 23, 2012. This report is attached as Appendix B. (The attachments to the report are included in a separate exhibit volume.) This status report detailed the actions we have taken, and will continue to take, to assure public safety remains the Company's highest priority in the operation of our natural gas transmission system. It also reflects the many fundamental changes to the operations and management practices made throughout the gas organization.

Other witnesses in this proceeding describe specific improvements that respond to operational issues raised in the CPSD Report:

- Integrity Management (Chapter 4, section E).
- Milpitas Station (Chapter 8, section F).
- Work Clearances (Chapter 8, section F).
- SCADA and System Monitoring (Chapter 8, section F).
- Toxicology Testimony (Chapter 8, section F).
 - 911 Notification, Emergency Response, and Public Awareness Programs (Chapter 10, section B).

Our record-keeping improvements are discussed in Chapter 1.D of our Records OII (I.11-02-016) testimony, which is being filed at the same time as this response.

While the details of our actions and plans are contained in these other sources, the following provides highlights of some of our actions since the San Bruno accident:

1. Transmission Pipeline Pressure Reductions

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- Implemented 38 primary pipeline pressure reductions affecting 1,001 miles of transmission pipe – approximately 15% of all transmission mileage.
- Restored an additional 20 primary pressure reductions affecting 1,400 miles of transmission pipe that were previously implemented.

2. Transmission Pipeline Integrity Verification

- Completed an accelerated direct assessment survey of our gas transmission lines in San Bruno. (Also surveyed the distribution system in the neighborhood affected by the accident.)
- Completed an accelerated leak survey of our entire gas transmission system.
 - Validated the MAOP on more than 2,088 miles of transmission pipeline including all pipelines running through urban, populated areas known as High Consequence Areas (HCAs) as of January 31, 2012; validated 1,559 miles of non-HCA pipelines through May 2012.
- Retrieved and scanned more than 3 million paper documents going back more than 50 years.

3. Strength Testing and Verification of Strength Test Pressure Records of Transmission Pipeline

 Strength tested or verified strength test pressure records on 262.5 miles through May 2012.

4. Valve Automation (PSEP)

 Automated a total of 37 valves on the transmission system through May 2012.

5. Pipeline Replacement and Repair

- Retrofitted nearly 172 miles of transmission pipeline to accommodate in-line inspection equipment in 2011.
- Completed 97 capital distribution projects, including the replacement of 33 miles of distribution main and 8,720 service lines in 2011.

6. Ongoing Monitoring of Gas System

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- Conducted monthly aerial "reliability" patrols of the interstate pipeline system that carries gas supplies into California from the Oregon and Arizona borders.
 - Increased HCA pipeline segment patrols to bi-monthly.
- Repaired our above ground Grade 3 leaks on the distribution system within
 15 months.
- Moved from repair of Grade 2 leaks on the distribution system from 18
 months to 15 months.

7. Public Outreach and Communication

- Created public web pages with detailed gas system and safety information, including the location of gas transmission lines.
 - Mailed letters to more than two million homes and businesses located within 2,000 feet of a PG&E gas transmission pipeline, which included a gas safety pamphlet.
- Enhanced educational outreach to first responders.
 - Provided pipeline maps including pipeline diameter, pipeline pressure and updated valve information.
 - Hosted in-class training sessions.
 - Developed a dedicated online portal, giving first responders real time access to valuable pipeline data, including pipeline location pressure and other component level information, portions of our Gas Emergency Response Plan, and key PG&E contact information.

8. Technology Upgrades

- Became the first utility in the world to use Picarro's car-mounted natural gas leak detection device, which is more sensitive than traditional instruments.
- Rolled out advanced leak detection instrument called Detecto Pak-Infrared that uses infrared technology to pinpoint methane gas without false alarms from other gases. This technology can detect and grade leaks at the same time.

 Rolled out handheld tablet computers to make real time data and pipeline maps instantly accessible to field personnel.

The efforts and initiatives I have discussed along with those addressed in the other referenced testimony demonstrate our commitment to safety and operational excellence and show that we are making progress in achieving those goals.

D. Publically Available Specification 55

A key element of Gas Operations' long-term gas plan is the development of a long term asset management plan. Gas Operations is pursuing a best practice asset management certification offered by the British Standards Institute under its Publicly Available Specification (PAS) 55. PAS 55, first published in 2004, was developed in consultation with a number of asset management experts and organizations. PAS 55 is designed for large scale asset systems — like utilities, railroads, and airports — that are intended to perform into perpetuity. The certification process includes an initial readiness assessment, a certification audit and a recurring annual recertification audit, all conducted by a recognized accreditation firm.

The standard requires that we develop a strategic plan for the organization and then systematically, and in a coordinated fashion, execute that plan by optimally and sustainably managing our risks, assets and asset system, asset performance, and expenditures over a defined life cycle. The standard assures alignment between Gas Operations' strategic plan, our gas asset management policy, standards, objectives, and work plans.

Gas Operations is pursuing PAS 55 certification as an objective validation that our gas system is on the right path to becoming one of the safest systems in the United States. PAS 55 requires asset owners to take a disciplined approach to developing and achieving strategic objectives. Very simply, it will validate that we have established a replicable process for planning our work, executing against the plan, identifying issues, and adopting a formal approach to continuous improvement, installing new assets, using them, maintaining them, and/or renewing and retiring them. The end result will be transparent and sustainable investment decisions that reduce risk and optimize asset health

whether we are creating or acquiring, using, maintaining, or renewing/retiring assets.

Further, the ongoing audit and recertification requirements provide an independent assessment that is not only standard-based but based on the performance that PAS 55 certification auditors observe at many high-performing international companies. A parallel to this level of independent assessment can be found in the nuclear industry through the Institute of Nuclear Power Operations (INPO). The gas system will benefit greatly from an independent and industry-based review of our asset management system on a regular basis.

A team of people from around the world is working to convert PAS 55 to International Standard of Operation (ISO) 55001. It will likely be approved by the ISO in March 2014. In that event, Gas Operations would seek ISO 55001 certification and strive to become the first ISO 55001 certified gas corporation in the United States, joining such international utilities as E.ON (Germany), EDF (France), Essent (Netherlands) and Western Power Distribution (U.K.), all currently PAS 55 certified.

E. Company-Wide Improvements

PG&E has reinforced and complemented the specific gas operations improvements discussed above with company-wide actions focused on safety and operational excellence

Since the San Bruno accident, PG&E has elected to its Board of Directors, Fred J. Fowler, a 40-year gas industry veteran. In his long career, Mr. Fowler has had experience working at companies with extensive gas asset holdings.

PG&E's Board of Directors has established the Nuclear, Operations, and Safety Committee to provide oversight of PG&E's safety (public and employee), compliance, and risk management policies and practices (including integrity management for gas operations). The Board of Directors also has expanded the role of the existing Risk Policy Committee. The Committee's scope has been expanded to consider public safety, reviewing key operational risks (i.e., those that result from the execution of the Company's business functions, arising from the people, assets, technology and processes within the lines of business (LOB) and that require a coordinated mitigation approach), risk response strategies, mitigation options, and the overall progress of risk management activities.

The Board has also named as Chairman and Chief Executive Officer of PG&E Corporation, Tony Earley, a respected utility industry veteran, who most recently headed up DTE Energy. At PG&E, Mr. Earley has established the Chairman's Safety Review Committee to reinforce the role of safety in all aspects of our operations and relationships with customers, the public, employees and suppliers. The Chairman's Safety Review Committee will review the Company's overall safety strategy and its implementation. This Committee is responsible for promoting a culture that embraces and advances safety in all aspects of the Company's operations and its relationships with employees, customers, suppliers, and other external stakeholders. The Committee will achieve this purpose by providing a forum in which significant public and employee safety incidents, lessons learned, and associated corrective actions can be discussed.

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 Mr. Earley also established the Chairman's Ethics Council, a cross-functional group of employees and leaders focused on promoting ethical behavior throughout PG&E. The group includes union-represented employees and union leadership. The Council explores the role that business ethics plays in our operations and in our relationships with employees, customers, and all other stakeholders. Included among the Council's responsibilities is "[e]nsuring the availability of the effective mechanisms for employees and others to report any ethical issues or concerns...." The discussions at the first few meetings of the Council have emphasized the significance of ensuring that employees are encouraged to raise safety issues.

PG&E has designated a Senior Vice President, Desmond Bell, as the new lead safety officer, and hired a new Senior Director of Safety, Linda Limberg. Ms. Limberg has 30 years of experience with safety programs in the industry. In his new position, Mr. Bell is responsible for establishing a common safety strategy and direction for the various lines of business. He chairs an Executive Safety Steering Committee, which includes Ms. Limberg and top leadership from each business unit. Both the Chairman's Safety Review Committee and

the Executive Safety Steering Committee include membership and participation from labor union leadership. 1

This more visible and focused company safety leadership has already implemented the following:

- PG&E has established a Supervisor Leadership program that trains supervisors to work with their employees to build a trust-based safety climate. This program will enhance supervisors' personal skills by providing practice in the areas of effective communication, feedback, and coaching, and by reinforcing leadership expectations and key behaviors. The program is a three-week course conducted over the course of three months and includes a Putting Safety First module. By the end of 2012, nearly 500 supervisors are expected to have completed this course. PG&E is preparing similar training for managers (to begin in late 2012) and for crew leads (to be launched in 2013).
- PG&E has set an overall goal of achieving first-quartile performance in public and employee safety by the end of 2014. To measure progress, PG&E has identified seven leading metrics related to gas emergency response, gas leak repair, the INPO Index Composite Score, incidents of wires down, 911 Emergency response to electric hazards, lost workday case rate, and preventable motor vehicle injuries. Five of these seven are related to public safety and two of the five are related to gas public safety:
 - the <u>Gas Emergency Response</u> metric measures percentage of arrivals within one hour and within 30 minutes of receiving an immediate response gas emergency order.
 - the <u>Leak Repair Performance</u> metric tracks Grade 2 leaks repaired.
 PG&E is reducing its schedule from 18 months to 15 months, but is striving to repair in 2012 all Grade 2 leaks found prior to January 1, 2012.
- We have revised our performance goals and rewards compensation (known as the Short-Term Incentive Plan STIP) for employees. Safety is now the

¹ PG&E has also engaged former National Transportation Safety Board Chairman Jim Hall to review our safety initiatives and culture and to advise us on ways to improve.

single largest factor, with the seven performance goals mentioned above representing 40 percent of the total. The remaining two factors of customer satisfaction (including reliability) and financials are each worth 30 percent.

In addition to the two gas public safety metrics (i.e., gas emergency response and gas leak repair) that are used to evaluate our employee incentives, we are also evaluating Locate and Mark Dig-Ins per 1000 Underground Service Alert Tags. In 2011, we targeted and achieved a 10% reduction. We are targeting an additional 15% in 2012 and 2013.

In addition to these safety initiatives, PG&E has overhauled its existing Enterprise Risk Management program to create an industry leading Operational Risk Management Program. As noted above, a Board-level Committee has been formed to provide oversight of safety, and operational and nuclear risks and associated mitigation activities and the scope of the Risk Policy Committee has been expanded to include public safety and operational risks. To further develop a culture of risk management and actively involve senior management in the process of managing risk, each operational line of business (LOB) has also established its own LOB Risk and Compliance committee, chaired by the LOB's senior executive, responsible for identifying, evaluating, and mitigating risks in the LOB. The LOB Risk and Compliance committees are designed to enable management to actively manage risks and align risk mitigation activities with department goals, operating plans, and resources. Working together, these organizations will increase their evaluation of specific risks facing each aspect of PG&E's operations and the level of investment necessary to mitigate specific risks.

Following the redesign of its program, PG&E retained Research Professor Ralph L. Keeney of Duke University, a contributor to the CPUC's Independent Review Panel Report, to verify that the new approach would deliver an industry leading program. Professor Keeney concluded, "[t]he current ORMP [operational risk management program] is designed to lead to being the best-inclass program. With the work to date on creating this program, the Chief Risk and Audit Officer and his team have made important steps necessary to eventually reach this goal."

In our upcoming 2014 GRC, we will document how we have identified risk and developed plans, and associated forecasts, to mitigate those risks. For example, Gas Distribution Operations is:

- Developing a state of the art gas distribution asset management system where complete, detailed, and accurate information about our distribution system will be readily accessible;
- Building a gas distribution control center that will reduce risk by providing greater visibility and control of the system;
- Identifying the highest risk distribution main and scheduling it for replacement;
 - Using improved leak survey technologies and increased frequencies to find and repair leaks more quickly; and
 - Using new technologies, improved procedures, and more personnel to respond to gas emergencies more quickly.

Finally, we have formed a new department – Information Management Compliance – to strengthen PG&E's records management and compliance activities. The department, which ultimately reports to the General Counsel, is part of a Company-wide effort to modernize PG&E's records and records management practices, the goal of which is to improve the retrievability of records, confirm their accuracy, and improve the records management systems themselves to help better manage PG&E's operations. The department is developing a Company-wide records management policy that promotes accountability, protects vital resources, and assures appropriate retention practices, and is working closely with Information Technology and with the LOBs to implement the policy.

F. Financial Commitment to Safety

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 Our commitment to safety and operational excellence is backed by a financial commitment to achieving those important goals. While we disagree with Overland Consulting's conclusions about past spending relative to authorized spending (see the analysis of Matthew O'Loughlin of the Brattle Group), there can be no question that today we are spending what is necessary to enhance our gas system safety.

We estimate that since the San Bruno accident and through the end of 2012, our shareholders will have spent — without assurance of rate recovery — approximately \$782 almost \$800 million in expense on our gas transmission system for work such as strength testing, validation of the MAOP of pipelines, and integrity management. Through March 31 September 30, 2012, our shareholders have absorbed approximately \$683490 million in expense costs directly related to our gas pipeline system, and we forecast that we will have incurred additional expense costs of approximately \$300 \$100 million by the end of 2012. Appendix C provides more detail on this expense spending. In addition to these expense dollars, PG&E's shareholders will spend approximately \$50 million for capital dollars disallowed under the CPUC's PSEP decision issued on December 20, 2012. These financial commitments along with the improvements we discuss demonstrate that PG&E is putting safety first.

G. Conclusion

PG&E has been and remains committed to improving safety at all levels in the Company. As this testimony describes, we have made important foundational strides in a wide variety of areas, including bringing in a largely new Gas Operations leadership team, improving training and employee communications, developing key metrics to highlight the importance of safety, and enhancing the focus on work quality. These improvements will help Gas Operations achieve operational excellence in performing the work needed to run a safe and reliable gas system.