June 2014

Gas Operations Improvement Tracker

Pacific Gas and Electric Company's (PG&E) Gas Operations Improvement Tracker contains information about organizational and operational milestones PG&E has achieved since 2011. The Improvement Tracker is updated on a quarterly basis and all content is subject to change.

If you any have questions about information contained in the Tracker, please contact your local PG&E representative or call PG&E's media line at **1-415-973-5930**.

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PG&E's Gas Operations Highlights

We've earned two prestigious international certifications: In May 2014, PG&E became one of the first utilities in the world to achieve PAS 55-1 and ISO 55001 certifications for best-in-class asset management. These certifications were awarded by an internationally recognized independent auditor and demonstrate the growing strength of our safety culture, our rigorous approach to asset management and our unwavering commitment to gas safety excellence.

We're responding to gas odor calls faster than ever: In May 2014, employees responded to calls within 60 minutes 99 percent of the time. The average response time in May was 19.9minutes, reducing the 2014 average to 20.0 minutes. PG&E now ranks in the top quartile for gas utilities nationally.

We've closed out nine of twelve NTSB recommendations: Of the twelve safety actions recommended by the NTSB following the San Bruno accident, PG&E has completed nine. Work on the remaining three recommendations is already well underway.

We've made significant progress on our Pipeline Safety Enhancement Plan*: Since the program began in 2011, we have validated the strength test records for 699 miles of transmission pipeline—558 miles validated through hydrostatic strength testing and 141 through verified records; replaced 107 miles of transmission pipeline; automated 150 valves; and collected and digitized more than 3.8 million pipeline records. **PSEP data valid as of May 30, 2014*

We're improving the quality of, and access to, our gas distribution records: Set to be fully deployed in 2014, we've created a Geographical Information System (GIS) tool to map, reconcile and analyze the data and events that take place on PG&E assets and are training employees to use this centralized system.

We've launched a system to track issues from identification through resolution: The Gas Operations Corrective Action Program provides employees and contractors with a system that offers multiple platforms for reporting potential and existing issues, and tracks the corrective actions taken.

We're mapping and surveying the centerlines of all transmission pipelines: We are using precise GPS coordinates to map the centerline of all 6,750 miles of gas transmission pipeline and are working with local communities to clear vegetation or structures that could interfere with our ability to maintain, inspect and safely operate our gas system.

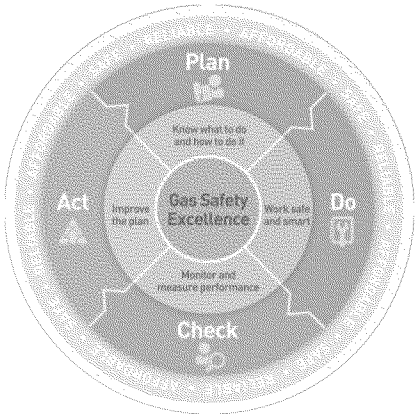
We've opened a cutting-edge gas control center: In August 2013, PG&E opened its new 42,000-square-foot control center allowing transmission, distribution and dispatch operators to work side-by-side 24 hours a day, seven days a week. This increases our visibility and control of the gas system, and our ability to operate efficiently and respond quickly to changing conditions.

We're using new tools and technology: In 2013, we supplied 400 ruggedized laptops to gas construction crews, providing them with real-time access to detailed maps of our underground gas system. PG&E also partnered with 3P Services to develop a cutting-edge "smart pig," customized for PG&E's gas system, providing an efficient, accurate way to assess the internal condition of pipelines. PG&E also became the first utility to use Picarro's car-mounted natural gas leak detection device—the world's most advanced leak detection tool.

Gas Safety Excellence

Background

PG&E is on a mission to become the safest, most reliable gas company in the United States, and to do so, we created a safety management system—Gas Safety Excellence (GSE)—as a framework to guide all aspects of the business. GSE has three key elements:



Asset Management, knowing the condition of our assets and having a robust plan to manage those assets based on accurate information, and understanding and managing risks to those assets.

Process Safety, which entails developing and deploying a comprehensive series of process and procedures that serve as controls, preventing large-scale operational failures and the associated risks.

Safety Culture, which entails embracing and encouraging open and honest communication among employees and leaders, and the alignment of human performance with the organizational strategy.

Goals of GSE:

Effectively manage risk and improve performance (asset management)

Embed safety into the design and maintenance of all of our assets by identifying and analyzing hazards (process safety)

Encourage employees to report safety issues through an integrated corrective action program designed to identify and track issues (safety culture)

Meet and exceed the standards for optimized physical asset management

International certification for best-in-class standards of asset management

In May 2014, PG&E achieved ISO 55001: 2014 and PAS 55-1: 2008 certification, globally-recognized specifications for best-in-class operational standards for asset management from an independent, international auditor, Lloyd's Register.

The underlying requirements of the certifications are the foundation of PG&E's safety management system. They require the highest level of rigor for managing the company's large number of physical assets, including transmission and distribution pipelines, pressure regulator stations, gas storage facilities, meters, and more.

In early 2014, Lloyd's Register traveled more than 1,700 miles throughout PG&E's service area reviewing the company's safety practices, information and risk management policies, employee qualifications, emergency response protocols and more than 20 additional critical areas of asset management. The certification process also involved a series of rigorous, independent audits and interviews of more than 150 PG&E management and field employees and contractors.

Asset Management and Maintenance

To become the safest, most reliable gas company in the United States, PG&E must have accurate, detailed information about our physical assets. Efforts underway relating to Asset Management and Maintenance include:

Asset Management Policy

Created a 14-point asset management policy that clearly states how we manage our business and our assets

- The policy provides the framework of our asset management plans, which detail how we will reduce risk across our eight asset families

Identified eight asset families and designated owners and risk champions to oversee the physical assets for each of these families

- Transmission pipeline
- Distribution Mains
- Distribution Services
- Customer-Connected Equipment
- Compression and Processing
- Gas Storage
- Measurement and Control
- Compressed Natural Gas (refueling stations)/Liquefied Natural Gas (portable supply)

Risk Management

Completed a benchmarking study that identified best practices for risk management in the utility, finance, and energy industries

- Worked with leading industry consultants to develop a roadmap to achieve best-in-class risk management practices

Identified the top operational and compliance risks and communicated them to employees

- Uploaded risk data to ECTS-Risk, the enterprise database used as a central repository of risk information across all Lines of Business for reporting and tracking purposes
- Increased quantification and analysis in risk identification and evaluation through the review of 90+ data files and reports, including:
  - Corrective Action Program (CAP) issues [See page 16 for further details on CAP]
  - Process Hazard Analysis (PHA) and Quantitative Risk Assessment (QRA) data
  - Industry data
  - Root Cause Analysis results
- Utilized external industry expertise to review and validate methodologies and findings

Developed fact sheets for employees specific to each asset family, including specific risks and mitigation strategies

Identified risk managers for each family to ensure rigorous, thoughtful analysis of risks

Established a Risk Charter and a Risk Compliance Committee in 2012, to oversee risk management activities, compliance programs, audit procedures and safety-related matters

Expanded the Gas Operations Risk Management team to better support an integrated risk management process within Gas Operations

Published the Asset Risk Management Standard and Procedure

Held several risk assessment workshops with subject-matter experts in 2012 and 2013 to identify operational and compliance risks

Developed a new, more granular risk scoring system, integrated with Investment Planning, to determine likelihood and consequence of failures in Gas Operations

- Adopted the standard enterprise Risk Evaluation Tool (RET) for risk scoring
- Developed standards and procedures for the Gas Operations risk management framework and process
- Established key performance indicators (KPIs) to measure the effectiveness of the mitigations and programs
- Developed metrics for some risks to monitor progress in risk reduction
- Linked risks in the next phases of the strategic planning process for investment prioritization and resource allocation

Began working with other lines of business to evaluate shared risks, such as cybersecurity

Data Management and Coordination

Created a Records and Information Management (RIM) organization in 2012 to manage PG&E's standard recordkeeping practices

- RIM's responsibilities include:
  - Appraising the volume and types of records housed in each Field Office
  - Recording the location and condition of records
  - Moving inactive records to consolidated, offsite storage
  - Finding and consolidating records currently on Legal Hold in consoles placed around printer/plotter stations throughout offices
  - Conducts assessments at PG&E field offices to catalog and standardize all records and ensure office teams are utilizing the system properly
  - Completed phase one of taking inventory of records by identifying the location of critical paper and electronic records
  - Continuing the transition from reliance on paper records to offer electronic forms and automated, optimized scheduling functions on mobile devices:
- Retrieved, scanned, and uploaded more than 3.8 million paper documents, digitizing paper records into electronic files going back more than 50 years
- Begun consolidation of data into a robust management system, Documentum, in an effort to increase data accuracy
  - Receives real-time system updates, and automates risk analysis and ranking
  - Confirms accuracy of scanned and uploaded records before storing in digitized database
  - Links transmission leak information and other historical pipeline records to PG&E's Gas Transmission Geospatial Information Systems (GT GIS) mapping database for analysis

Begun deploying software to electronically capture preventive maintenance (corrosion) information for gas transmission and distribution equipment (to be fully deployed by the end of 2014)

Begun deploying software to improve processes, procedures and technology for recording, maintaining, tracking and reporting leak repairs (to be fully deployed by the end of 2014)

Is deploying a Gas Distribution Geographical Information System (GD GIS) tool to map, reconcile and analyze the data and events that take place during work on PG&E distribution assets

- Converted data on 14,000 miles of main and 1.3 million services into GIS
- Successfully deployed GD GIS to East Bay, Sacramento, Peninsula and San Francisco divisions in 2013 and to Diablo in 2014
  - Evaluated feedback from 2013 deployments to educate approach going forward
  - In 2014, PG&E plans to almost double the number of deployments compared to 2013
- Piloted the one-way push of Gas asset data from GIS to SAP in the Peninsula Division, with plans to add more divisions in 2014
- Will begin scanning all distribution Gas Service Records and collecting the critical attributes to be put into GIS

Data Accessibility

Supplied 400 ruggedized laptops to gas construction crews giving them real-time access to digital transmission and distribution pipeline maps and new GD and GT GIS systems

- Approximately 60 percent of work forms have been converted from paper to electronic format to improve emergency response

Deployed more than 300 tablet computers to field employees, making real-time data and pipeline maps; current standards and work procedures; PG&E's intranet; and email from remote locations instantly accessible

Mapping

Has decreased the length of its map cycle, defined as the time it takes for new or changed asset data to be updated in records after receipt by the mapping department

- For 2014, targeted a maximum 25-day average map cycle
- As of May 2014, PG&E has achieved an average of an 11-day map cycle

Focused on reducing the overall cycle time between construction completion in the field and updating maps in the system

- Implemented training of the mapping system for operating and clerical personnel
  - Created a standardized checklist for job packages from the field
  - Trained hundreds of employees on how to use the new process
  - Conducted quality checks in the field to ensure that necessary documents are entered into the system
  - Created standards and procedures for the creation of maps completed in the field for the Transmission and Distribution asset families

Class Location Verification Program

Conducts an annual system-wide review of transmission pipeline class location designations, analyzing approximately 5,800 miles of pipeline to identify potential changes in class designation

- Informs the CPUC's Safety and Enforcement Division of system-wide review findings
- Takes action if any pipeline segments are determined to be operating out of class and mitigates issues according to regulation

Designated the Director of Asset Knowledge Management as the person with ownership and accountability for keeping class locations current

Revised the standards and procedures for pipeline patrolling and continuous surveillance of class locations, and implemented new guidelines for aerial patrols and reporting

Enhanced employee training on all class location procedures and reporting methods

Infrastructure Upgrades

Rebuilding or replacing approximately 4,700 high-pressure regulators (HPRs) and 1,000 district regulator stations

- Rebuilt or replaced 1,018 HPRs and district regulator stations in 2012
- In 2013, PG&E mitigated—which includes replacement, rebuilding or removal—of 498 HPRs
- For 2014, PG&E has identified over 400 HPRs for mitigation

PG&E completed an initial assessment of the documents for every critical gas transmission (GT) facility, including more than 5,700 drawings and manuals

PG&E began three long-term projects in 2013 to enhance the quality of asset information of the approximate 500 facilities belonging to the Measurement and Control, and Compression and Processing asset families. The three programs include:

- Condition Assessment, to be completed in 2014:
  - Assess condition of station-specific assets and determine inputs for station asset integrity
  - Prepare an assessment report that includes recommended corrective action plans and cost estimates for remediation
- Critical Documents, to be completed by 2017:
  - Ensure critical documents are maintained in accordance with Standard TD-4551S (PG&E standard) requirements to improve the safety, reliability and accuracy of information for GT facilities
- Strength Test Pressure Report Correlation and Record Retrieval, to be completed by Q4 2014
  - Collect and review station strength-test documentation and primary records containing engineering specifications to achieve traceable, verifiable, and complete records for facilities

All three projects include the development or review of records and information, including the generation of facility assessment reports, the gathering of station component data, including historical strength-test records and material/geometrical specifications, and ensuring that station drawings meet or exceed modern regulatory requirements

Pipeline Safety Enhancement Plan

Has devoted nearly $1.6 billion to improve the gas transmission system

Plans to strength test, or validate prior strength-test records for, approximately 658 miles of pipeline to meet the standard for "traceable, verifiable and complete" records

- 558 miles validated through hydrostatic strength testing
- Additionally, 141 miles have been validated through previous records

Plans to automate as many as 217 valves on large-diameter, high-pressure pipelines located in heavily populated areas by December 31, 2014

- Automated 150 valves as of May 30, 2014
- Installed 14 automatic shutoff valves in areas where transmission pipelines cross major fault lines

Plans to replace 143 miles of pipeline

- Replaced 107 miles of pipeline as of May 30, 2014

Plans to have a total of 201 miles of transmission pipeline retrofitted to accommodate in-line inspection tools

- 201 miles have been retrofitted as of May 30, 2014

Plans to conduct a total of 219 miles of in-line inspections in 2013 and 2014

- Inspected 90 miles using in-line inspection tools as of May 30, 2014

Continues to improve its process and schedule performance

- Pipe replacement, valve automation, in-line inspection and strength-test schedulers were combined into one team in 2013 to increase efficiency and promote consistency

Integrity Management

Completed MAOP validation on all of its 6,750 miles of transmission pipeline in July 2013

Implemented integrity management principles beyond pipelines located in high-consequence areas (HCAs), including:

- Monitoring localized, slow-moving land masses and their interactions with pipelines
- Surveying soil movement and land mass changes
- Supplementing and refining existing internal corrosion control program by implementing industry best-practices
- Improving existing external corrosion direct assessment (ECDA) program with support of industry-leading consultants
- Implemented an improved risk analysis model using integrated software that provides real-time risk analysis across the transmission pipeline system
- Developing a shallow-pipe program to collect data on pipeline depth during normal patrols, and centerline surveys being conducted via the Pipeline Pathways program
- Implemented a fault-crossing study, monitoring and remediation program
- Implemented a fracture-control plan to identify any changes in longitudinal seam stability
- Continues to work with industry-leading consultants to enhance integrity management processes

Conducted industry benchmarking assessment and upgraded procedures to reflect industry best practices

- Conducts monthly aerial "reliability" patrols of its intrastate pipeline system that carries gas supplies into California from the Oregon and Arizona borders

Increased aerial patrols of all HCA pipeline segments to twice a month

Since 2004, PG&E has retrofitted 1,467 miles of pipeline to accommodate in-line inspection tools, and estimate completing more than 1,554 miles by December 2014

- Inspected more than 1,153 miles of pipeline using in-line inspection tools

Developed, in conjunction with German firm 3P, an in-line inspection tool to be used with low-flow, low-pressure pipelines, which was used for the first time in the world to assess Line-101

Implemented a process to solicit feedback from PG&E field crews regarding the condition of the gas distribution system

Transmission Integrity Management Program (TIMP)

Completed an accelerated, comprehensive leak survey of PG&E's entire transmission pipeline system

As part of the Pipeline Pathways program, completed a "centerline" mapping survey of its entire 6,750-mile gas transmission pipeline system in 2013, using highly precise mapping tools

- Survey all areas above transmission pipelines, called utility rights-of-way, which are located along residential, commercial, industrial and agricultural properties
- Locate, mark and map the center of all transmission pipelines and check the area above them for structures or vegetation that could interfere with PG&E's ability to maintain, inspect and safely operate the pipeline
  - Provides easier access for maintenance, testing and monitoring of the pipelines, and enables PG&E to work more efficiently with first responders
- Having precise GPS locations of the center of a pipeline will enable PG&E to use high-tech tools to better maintain its pipeline system
  - This will be important whether someone is checking on a pipeline in a computer system, doing a leak survey or patrolling in the field, either on foot or from the air using a helicopter or airplane

Distribution Integrity Management Program (DIMP)

Analyzing and replacing Aldyl-A plastic pipelines throughout the system:

- Replaced 65 miles of Aldyl-A pipeline in 2012 and 2013
- Targeting approximately 33 miles of Aldyl-A for replacement in 2014

Increased the company's ability to identify, evaluate, and rank issues by working to update the risk algorithm, Risk Finder

- Created a risk algorithm that allows comparison of issues across materials—from Aldyl-A plastic to steel
- Developing a more comprehensive algorithm that incorporates multiple data sources such as Pathfinder GIS, AC inspection data, maintenance records and DIMP Field Review information
- Incorporating both the Aldyl-A and Gas Pipeline Repacement Program (GPRP) algorithm into the new risk algorithm

- Web-based self-serve dashboards that allow the users to drill into specific threats on pipe segments and review the risk results

Video inspected more than 19,000 sewer laterals in 2013 to confirm that previous gas replacement work did not damage adjacent sewer lines

- Inspection crews identified 153 locations where cross bores have occurred.
  - Of those,149 cross bores have been repaired
- For 2014, PG&E is planning 24,000 inspections
  - As of May 1, 2014, of the 73 cross bore locations identified, 61 have been repaired

The DIMP Field Review process implemented in 2012 solicits feedback from PG&E field crews regarding the condition of the gas distribution system

- As of April 1, 2014, nine divisions have had a field review, and another five are planned for 2014

Gas Pipeline Replacement Program

Continues to replace aging cast iron, steel and copper distribution lines with modern plastic pipe that is more flexible, corrosion resistant and reliable during earthquakes through the Gas Pipeline Replacement Program (GPRP):

- A total of 2,243 miles of cast iron and pre-1940 distribution main have been replaced since the program was launched in 1985
- An additional 178 miles of distribution main have been identified for replacement by 2015
- In 2013, GPRP replaced more than 30 miles of distribution main
- For 2014, GPRP plans to replace approximately 33 miles of main, including 4,650 associated services

Distribution Leak Repairs

Reduced the gradable leak workload:

- Repaired nearly 41,000 leaks of all grades in 2013
- To date in 2014, has already repaired over 12,000 leaks
- Reduced the number of all workable Grade 2 and 2+ leaks to an all-time low of 151 leaks as of December 31, 2013

Exceeds the requirements set forth by regulators by repairing non-gradable, very minor trace leaks at customer gas meters

- Repaired nearly 108,000 trace leaks at customer gas meters by the end of 2013, with over 22,000 more completed to date in May 2014

PG&E is taking a systematic approach to safety incident investigations, integrating corrective action programs and implementing non-punitive reporting of safety issues. Efforts underway relating to Process Safety:

Gas Control Center

In 2013, opened a 42,000-square-foot Gas Control Center located at Bishop Ranch in San Ramon where gas system operators and dispatchers work side by side with state-of-the-art technology to improve coordination and handling of incoming emergency calls and efficiency in dispatching response crews

Installed new tools and technology to provide improved situational awareness and intelligence of potential risks

Is adding remote pressure-monitoring technology at approximately 5,000 locations within the gas distribution system over a five-year period

This will increase Gas Control Center visibility of the distribution system to 95 percent, allowing for early detection of abnormal conditions and the ability to take a proactive approach to reducing emergency events

Created instructions on automated pipeline segment shutdowns, linking them to SCADA screens so they are readily available during emergencies

Engaged with industry experts to analyze and improve operator workflows, processes and tools to enhance situational awareness

Gas Dispatch Center

Improved the handling process for incoming emergency calls to efficiently dispatch Gas Maintenance and Construction personnel, Gas Service Representatives (GSRs), and other first responders to the scene of a natural gas emergency

Completed dispatch system upgrades, improving arrival times of GSRs responding to service calls

- In May 2014, GSRs continued to excel in response time, achieving arrival on-site within 60 minutes 99 percent of the time
- The average GSR response time was 19.9 minutes in April lowering the 2014 year-to-date average to 20.0 minutes

Begun installing “smart board” technology allowing interactive emergency response planning with field crews and remote technical staff

Begun developing and implementing Gas Distribution and Transmission Control operator best practices, in addition to updated clearance processes and training

Quality Assurance and Quality Control

Continuing to develop new programs to assess the quality of, and adherence to, company standards and procedures

- New or improved programs for 2014 include:
  - Side-by-side quality assessments of regular station maintenance, valve maintenance, rotary meter maintenance and corrosion control monitoring
    - These assessments help reinforce the standards and procedures, communicate best practices, answer technical questions on procedures from the field and provide information that is used to improve the procedures and training associated with this work
  - Comprehensive assessments for most distribution construction work, including short and long duration work performed by division construction crews, general construction crews and contractors
  - Completing assessments that target newly qualified operator employees or employees who have failed an earlier assessment in performing leak survey or locate and mark work.
    - Provides feedback on performance and the opportunity to successfully demonstrate newly learned skills for safety functions in leak detection and locating our gas and electric infrastructure prior to excavation to prevent damages
- Continued performance of quality programs assessing field work for:
  - Leak repair
  - Distribution re-dig
  - Transmission construction
  - Field services
  - Locate and Mark field work
    - Our October 2013 pass rate for Locate and Mark assessments was 74 percent, compared to 35 percent when the program began in 2011
    - Locate and Mark assessments are based on a variety of factors, including accuracy of mark, correct marking designation and proper instrument calibration

Technology Upgrades

Has put 90 new gas crew trucks into service, designed with input from hundreds of employees

- New upgrades include roll-up side compartments giving crews safer access to tools while parked on busy streets and a loading device to assist with heavy equipment
- Over the next three years an additional 40 trucks are expected to be deployed

Became world's first utility to use Picarro's car-mounted natural gas leak detection device, which is much more sensitive than traditional instruments

Introduced a new wireless, self-propelled pipeline inspection tool in February 2013 that can detect dents, cracks and corrosion that may exist

Increased use of high-definition cameras and high-tech devices called "smart pigs" to inspect the internal condition of many pipelines with 360 degrees of visibility

Increased use of aerial technology on helicopters to survey our pipeline system, especially in more remote and rugged areas

Rolled out an advanced leak-detection instrument called Detecto Pak-Infrared (DP-IR) that uses infrared technology to pinpoint methane gas leaks without false alarms caused by other gases; this technology can detect and grade leaks at the same time

Emergency Planning and Response

Contacted ~25 other utilities and first responder agencies to identify best practices and industry standards, and benchmarked against other leading utilities in 2011

- Continues to benchmark against other emergency preparedness programs and enhance the Gas Emergency Response Plan (GERP)
- Participated in a best-practices symposium with approximately 20 other utility companies in May 2013

Established a Gas Operations emergency preparedness team in 2012, focused on three areas: (1) field delivery, (2) emergency planning, and (3) performance and compliance.

- This team revised and published its third annual GERP in August 2013—the first integrated transmission and distribution response plan of its kind
- Significant changes to the GERP in Version 3 include:
  - Inclusion of PAS 55 conformance
  - Introduction and links to GERP Volume 2 Resources SharePoint site, which makes available, online, all District and Division resource lists, updated more frequently than the GERP is published
  - Updated text on the new Gas Distribution Control Center (GDCC)
  - Added information on PG&E's Portable Natural Gas Program (LNG/CNG) to offer gas resources in the event of an outage
  - Inserted references to the new Corrective Action Program (CAP)
  - Described the Radio Refresh Program, giving Radio Talk Groups and My Learning course codes
  - Included new Resource Typing pilot program, which categorized gas vehicles using FEMA/NIMS guidance

Upgraded the mobile application to the 3rd volume of the GERP; this mobile application—available on iTunes—allows first responders to access the GERP from any location

Dedicated a team to oversee gas emergency planning, support and training, which:

- Provides free, regionally-based emergency response training to fire departments and agencies within PG&E's service area
  - In the first quarter of 2014 alone, Gas Emergency Planning held 146 first responder trainings
- Designs and manages internally-focused emergency response and public-safety programs and training
  - In the first quarter of 2014, met with 161 agents
- Continuously evaluates PG&E's emergency response and public safety efforts
  - In the first quarter of 2014, the team completed 26 GERP trainings with over 400 gas employees
- Meets regularly with local governments and agencies

Participates in safety-related conferences:

- PG&E presented at the Western Energy Institute's Emergency Preparedness and Response Symposium in May 2013
- Presented at the American Gas Association's Disaster Mitigation Symposium held in Atlanta, Georgia in June 2013
- Participated in the SGA Webinar on public safety, training and outreach efforts in June 2013
- Presented the new GERP at the AGA-sponsored Utility and Customer Field Services committee meeting in September 2013
- Presented the keys to PG&E's successful approach at the Emergency Preparedness Executive Symposium in Detroit, Michigan in September 2013

Completed eight full-scale mock emergency scenario exercises in 2013, up from two in 2012

- Adding new emphasis on partnering with first responder organizations, such as, but not limited to, Law Enforcement, Fire (career and volunteer), Emergency Management Systems, Caltrans, City and County Office of Emergency Services, Public Works Agencies, American Red Cross and federal agencies, such as Homeland Security

Provided pipeline maps, GIS data, and other critical information to first responders through our first responder online portal, which had 1,058 users by the end of the first quarter in 2014.

Implemented new 911 notification procedures to ensure that PG&E promptly calls the appropriate local emergency agency (e.g., 911) during any incident that may affect public safety, public property or the environment

Safety-Enhancing Emergency Response Technology

Added six new Mobile Command Center vehicles to its fleet, packed with the tools crews need to address emergencies from the field, including:

- A 3,000-watt on-board generator
- Three workstations equipped with laptops
- Satellite phones, radios, and a radio controller that allows PG&E to communicate with other first responder agencies, such as police, fire and highway patrol

Developed an online portal for first responders, giving them secure access to transmission pipeline maps, valve locations and attribute data

In 2012, created online training classes for first responders accessible via PG&E's public website: www.pge.com/firstresponder

- Created "Teaming Up for a Safe Response" videos demonstrating how agencies respond to gas emergencies in urban and suburban areas
  - Videos are being distributed to external first responders by PG&E's Public Safety Specialists

Created five gas-specific Emergency Operations Center (EOC) teams manned with technical experts year-round in case of a gas related emergency; these teams train and practice roles and responsibilities to engrain emergency preparedness throughout gas operations

PG&E encourages employees and contractors to report and act on safety concerns. This includes fostering an environment where essential behavioral changes can occur at all levels. We are setting clearly-defined goals and expectations, structuring incentives to align with those goals, measuring progress using industry benchmarks, and effectively communicating with customers, employees, regulators and the communities we serve.

Management Focus

PG&E's public- and employee-safety metrics account for 40 percent of the company's goals

Clear procedures and guidelines have been set to ensure all work is conducted in a safe manner

Internal escalation processes were revised to ensure that customer concerns are addressed quickly and effectively

Best practices and protocols were developed through participation in the industry-wide American Gas Association Pipeline System Safety Initiative

Corrective Action Program (CAP)

Launched multiple reporting channels to allow employees and contractors real-time, on-site issue reporting and analysis, including:

- A secure internal website
- A hotline accessible from any location (1-855-GO-CAP)
- A paper notification form
- SAP CAP
- iPhone and Android Smartphone App to be released in 2014

CAP tracks reported issues and the corrective actions taken to prevent future occurrence or recurrence

Implemented a CAP program communications strategy and training plan for users across the service area

Trained the CAP Team to industry Cause Evaluation Standards so as to ensure each member can evaluate causes of significant risk issues.

Has provided CAP Coaches for each department

Implemented a CAP risk assessment tool to evaluate the significance and probability of the recurrence of issues

Is performing bi-weekly analysis on metrics to assess the effectiveness of CAP, including:

- Number of issues submitted and closed
- Risk level of issues
- Source of issues submitted
- Overdue notifications
- Overdue tasks
- Issue submission methods

Training the Future Workforce

PG&E is addressing the critical shortage of skilled workers and trained professionals that PG&E and utilities across the country are facing due to our nation's aging workforce

Created the PowerPathway™ program, partnering with education and workforce investment, labor unions and industry employers to prepare individuals for high-demand positions at PG&E and throughout the energy industry

- Initiatives include faculty "train-the-trainer" programs; co-delivery of classroom instruction; student field visits; program funding and in-kind donations of equipment

Improved Staffing and Organizational Clarity

Separated its gas and electric businesses to create a new Gas Operations organization with the authority, resources and mandate to oversee all gas operations

Aligned gas operations teams into three functional organizations to work more efficiently and effectively:

- Asset and Risk Management: responsible for identifying the right work for our field teams to complete
- Financial and Resource Management: responsible for prioritizing and planning the work
- Engineering, Construction and Operations: responsible for doing the work right

Hired executive leaders who are accountable for the following areas:

- Public Safety and Integrity Management; Asset Knowledge Management; Standards and Policies; Project Engineering and Design; Investment Planning; Transmission Maintenance and Construction; Distribution Maintenance and Construction; and Gas System Operations

Hired more than 2,000 new employees and leaders in all levels of the Gas Operations organization since January 2011 through the first quarter of 2014

Filled 54 percent of open positions with internal hires as of October 31, 2013, demonstrating PG&E's commitment to developing our existing talent base

Developed programs to improve recruitment efforts by identifying the most appealing aspects of the company's value proposition, including: surveys, focus groups and quarterly roundtables of new hires to obtain feedback on the recruitment process

Damage Prevention (Public Awareness)

Addressing the "dig-in prevention" effort by developing dig-in reduction programs and enhancing public awareness and partnerships

Hosted two "811 Workshops", reaching 162 excavators and industry leaders about dig-ins

Participated in two Senator Hill "Damage Prevention Workshops" focused on strengthening damage prevention in California

- Completed a "Call Before You Dig" video shoot in partnership with PHMSA

Established the Gold Shovel Standards, a requisite set of conditions a contractor must maintain to do excavation-related work for PG&E

- Establishment and execution of this program within PG&E will enable other operators similarly situated to follow PG&E's lead, promote the interest of legislators and government executives, and, most importantly, enhance public safety and protect the environment.

Working to identify commercial excavating entities which have "dug-in" or otherwise damaged—or threatened to damage—PG&E underground assets or have repeatedly demonstrated poor excavating habits, in an effort to reduce dig-ins

- Employ a decision matrix for identified entities, based on defensible criteria. Possible sanctions, balanced with educational opportunities, would be implemented to correct the culture or behavior of "habitual offenders."

Working with Home Owner Associations (HOAs) to encourage compliance with One Call Law, which requires coordination with the California government before digging into the ground.

811 Ambassador Program

- Educating employees on One Call Law to engage them as promoters of the Damage Prevention and Public Awareness efforts

Public Outreach and Communication

Partners with first responders, community leaders and public safety officials to host practice drills, training programs and educational resources

Launched a pipeline safety campaign directed at all schools within our gas service area

- Sent information and/or held in-person meetings with school administrators to discuss pipeline locations, safety awareness and gas emergency preparedness
- Conducts community outreach activities including community events and school classroom safety board presentations through Employee Ambassador program

Directly mails gas safety brochures and letters to more than two million homes and businesses located within 2,000 feet of a PG&E-owned gas transmission pipelines and other gas system facilities

Twice a year delivers gas pipeline safety messages to more than 4.3 million customers through bill inserts in customer energy statements; these messages are also delivered to approximately 2.1 million residential and 84 thousand business customers through an email campaign

Prominently displays 811 messaging in PG&E customer communications

Seeks opportunities for multi-cultural outreach to customers by providing in-language materials

- In February 2014, over 5,000 red envelopes containing gas safety and 811 messages were distributed to customers at San Francisco's Lunar New Year Parade

Mails safe digging and gas pipeline safety mailers to contractors, fencing, landscapers, master-metered customers and HOAs in PG&E's service territory

Coordinates to include safety messages in customer newsletters and other mass media outreach

- In the first quarter of 2014, 811 ads ran in local newspapers within the Bay Area

Conducts extensive community outreach to notify and educate customers about field activities that may affect them, and answer any questions or concerns they may have

- Conducts public outreach through door-to-door canvassing, door hangers, open houses, automated calls, letters, news releases, PGE.com website, social media, 24-hour dedicated phone line, and public service announcements

Informs public and local government officials of schedule and progress of field work

Conducts customer research and incorporates insights to improve customer communications

Facilitated more than 800 first responder workshops since 2011; in 2013 alone, PG&E exceeded its goal of 500 by conducting 580 first responder workshops

- In the first quarter of 2014, PG&E facilitated 146 external first responder trainings

Completed 11 tabletop exercises in 2012 and 16 in 2013

Continues to develop and deploy training simulation tools to prepare employees for potential pipeline-rupture scenarios

- PG&E's training curriculum received Peace Officer Standards & Training (POST) certification from the State of California in August 2013
- Developed a comprehensive contact list in 2012 for all local first responders to improve communication during an emergency
- Continues to complete ongoing, improved Incident Command System (ICS) training, including a gas-specific ICS course

PG&E is achieving this goal:

Completed nine of the 12 safety actions recommended by the NTSB thus far.

The nine completed recommendations include:

- **Integrity Management (IM):** PG&E has revised its IM program to include an updated risk model and assessment methodology, consideration of defect and leak data for the life of each pipeline, and an improved self-assessment process. In addition, PG&E updated 11 risk management procedures and added four new procedures
- **Threat Assessments:** PG&E completed the threat assessments using the revised risk analysis methodology from its IM program, finalized the associated 2012 high consequence area assessment plan, and submitted the results of the assessments to the California Public Utilities Commission and the Pipeline and Hazardous Materials Safety Administration
- **Emergency procedure:** PG&E established a comprehensive response procedure to large-scale emergencies on gas transmission pipelines. The procedure identifies a single person to assume command and specifies duties for all others involved; includes development and use of trouble-shooting protocols and checklists; and requires periodic tests or drills to show that the procedures are effective
- **911 notification:** PG&E's Gas Control Center operators, who keep 24-hour watch of the utility's transmission pipeline network, are now required to immediately notify the 911 call centers of affected communities when a possible pipeline rupture is detected
- **Toxicological tests:** PG&E has revised its post-accident toxicological testing to ensure timely testing and inclusion of all employees potentially involved in an incident
- **Records:** PG&E conducted an intensive records search including retrieving, scanning, and uploading more than 3.5 million paper documents to meet the NTSB's threshold for traceable, verifiable and complete records.
- **Work clearance procedures:** PG&E's work clearance procedures now include the development of contingency plans for planned work on the natural gas transmission system. These new procedures will ensure accuracy and completion of clearance forms, and will require that specific personnel have necessary knowledge of the intended work and related clearance procedures.
  - PG&E's work clearance procedures define the planning and controls that must be in place before work is performed on the gas system.
- **MAOP validation:** PG&E first completed MAOP validation for gas transmission pipelines running through high-consequence, populated areas, and now also has completed MAOP validation for all of its transmission pipelines.
- **Public Awareness Plan:** PG&E developed and incorporated written performance measurements and guidelines into its Public Awareness plan to ensure that customers and communities receive important gas safety information

PG&E is working diligently on the remaining recommendations

- Of the three remaining safety recommendations, the NTSB considers PG&E's progress "open—acceptable pending completion"