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

Order Instituting Investigation And Order to
Show Cause on the Commission's Own Motion
into the Operations and Practices of Pacific Gas
and Electric Company with Respect to Facilities
Records for its Natural Gas Distribution System
Pipelines.

U39G

I.14-11-008
(Filed November 20, 2014)

**PACIFIC GAS AND ELECTRIC COMPANY'S INITIAL REPORT IN
RESPONSE TO OII**

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Dated: December 22, 2014

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

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**PACIFIC GAS AND ELECTRIC COMPANY'S INITIAL REPORT IN
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I. INTRODUCTION

Pacific Gas and Electric Company ("PG&E") provides this Initial Report ("Report") as directed by the Order Instituting Investigation and Order to Show Cause ("OII") in this matter.¹ PG&E's vision is to provide the safest and most reliable gas utility service in the United States. To that end, PG&E supports the Commission's thoughtful review of its gas distribution recordkeeping practices to further enhance the safety of its system and service. Because PG&E recognizes the significance and scale of the recordkeeping challenges it—and the industry as a whole—faces, it has embarked on numerous projects and programs to improve its records and mapping practices. Good recordkeeping, however, is just one of a number of complementary safeguards built into PG&E's system, which is why PG&E has also implemented, and continues to implement, robust measures to backstop reliance on sometimes imperfect records and thus maximize the safety of its employees, contractors, and the public.

¹ OII at 9-10, 14.

PG&E acknowledges the seriousness of the six incidents identified in the OII and regrets the property damage and public inconvenience that resulted. Like the rest of the U.S. and global gas industries, PG&E faces challenges in maintaining records that in many instances date back more than 50 years. While PG&E constantly strives to improve its gas distribution recordkeeping, the sheer scope of its distribution system—comprising more than 77,000 miles of pipe, three times the circumference of the globe, with literally miles of related records—makes this an enormous undertaking, and attainment of perfectly accurate recordkeeping impossible.² Recognizing the magnitude of the challenge and these inherent limitations, PG&E has developed and implemented extensive initiatives to enhance the safety of its gas distribution business, including enhancements to gas distribution recordkeeping. These initiatives are not limited to recordkeeping practices. PG&E’s efforts, detailed below, are designed broadly and cross-functionally to reduce and minimize the risk of incidents on PG&E’s gas distribution system, including the types of incidents referenced in the OII. In addition, this is not a static picture. PG&E is continuously considering opportunities to improve its recordkeeping specifically and other complementary measures that will enhance the safety of its gas distribution system.

² These issues are not limited to PG&E. For example, in 2011, the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (“PHMSA”) and the National Association of Pipeline Safety Representatives hosted a full-day event that was attended by over 500 representatives from U.S. and Canadian federal pipeline safety regulatory agencies and state/provincial regulatory agencies, standards developing organizations, pipeline operators, and trade organizations, among others, to discuss “Improving Pipeline Risk Assessment and Recordkeeping.” By its very nature, the event acknowledged industry-wide gaps in recordkeeping and pipeline data. Utility experts in the UK have identified strikingly similar issues for their utilities, including numerous changes of utility structure, ownership, and boundaries going back for many decades, and varying quality, coverage, and detail of records.

II. DISCUSSION

The OII directs PG&E to identify within 30 days of the issuance of the OII “all reasons of law and fact” that “support the possibility that the company has committed no violation of law with respect to its gas distribution recordkeeping.”³ This Report is organized as follows:

(i) A response to the Commission’s Safety and Enforcement Division (“SED”) Incident Investigation Reports (collectively, “SED Reports”) for the incidents identified in the OII, focusing on the recordkeeping issues that contributed to the underlying incidents;

(ii) A description of the many recordkeeping and complementary initiatives PG&E has undertaken to improve the safety and reliability of its gas distribution system. While not all of these efforts were undertaken in direct response to the identified incidents, PG&E believes that each measure will help avoid similar incidents in the future;

(iii) A statement of PG&E’s objections to the legal conclusions reached in the SED Reports; and

(iv) Identification of witnesses to the responses and information in this Report.

PG&E’s investigation of the incidents identified in the OII is ongoing. While this Report is based on PG&E’s best efforts and the best information available to it within the prescribed time period, PG&E reserves the right to present additional facts and legal defenses to the OII as a whole and to the related findings and allegations of the SED at an appropriate time in this proceeding.

A. The Scope and Scale of PG&E’s Gas Distribution System and Related Records

An assessment of PG&E’s gas distribution recordkeeping practices should be made in the context of the nature and scope of its gas distribution system and operations and of the related

³ OII at 9.

records themselves. While safety is the ultimate goal, it cannot be achieved by a one-size-fits-every-utility approach. A review of PG&E's recordkeeping practices should recognize the challenges associated with managing a very large, diverse portfolio of records for a gas distribution system of PG&E's scale.

PG&E's gas distribution system consists of over 42,000 miles of mains and nearly 3.3 million gas services that provide natural gas to the company's 4.3 million residential, commercial, and industrial customers. Its gas distribution system covers 70,000 square miles—an area larger than 33 of the 50 United States. The system is comprised of 826 hydraulically independent systems, with more than 77,000 miles of underground gas lines. PG&E's gas distribution paper as-built and gas service records total over 18,000 linear feet which, if stacked vertically, would equal almost three miles—the height of 15 Empire State Buildings. Due to the consolidation and expansion of PG&E's mapping group throughout the more than 100 years of PG&E's (and its predecessors') existence, these records have been stored in over 30 local offices from Bakersfield to Eureka. The records vary in type and consistency, an issue PG&E continues to address as it moves from paper-based records and processes to centralized, and mostly electronic, systems. PG&E is implementing best practices to preserve this critical asset information and improve its accuracy and accessibility, with the ultimate goal of improving safety and reliability.

B. Description of the Incidents

The OII directs PG&E to identify incorrect factual contentions and conclusions regarding PG&E's gas distribution recordkeeping in the SED Reports.⁴ The Reports draw in large part

⁴ The first paragraph of the OII makes clear that the investigation will determine whether PG&E's recordkeeping practices for its gas distribution system are in violation of the law. PG&E's response to this directive is therefore limited to factual assertions and conclusions related to PG&E's gas distribution recordkeeping.

upon materials PG&E provided to SED, consisting of initial incident reports, 30-day follow-up letters, final 420 reports, data responses, and other communications between PG&E and SED investigators. With the minor exceptions noted below, PG&E does not disagree with the factual contentions and conclusions regarding its gas distribution recordkeeping stated in the SED Reports.⁵

The OII further directs PG&E to explain the recordkeeping issues identified in the SED Reports and the corrective actions PG&E took in response to those issues. As explained throughout this Report, the enhancements to PG&E's infrastructure, protocols, and practices explained in this Report will serve to minimize the risk of future events similar to the identified incidents, whether or not those enhancements were initiated directly in response to the incidents in question. With that qualification, PG&E's further responses to the questions presented by the OII specifically related to those six incidents are contained in Appendix A to this Report.

C. PG&E Has Made Substantial Efforts to Enhance Its Gas Distribution Recordkeeping with the Goal of Minimizing Future Events Similar to the Identified Incidents.

PG&E has embarked upon numerous improvement initiatives to enhance the accuracy and accessibility of its gas distribution records, to backstop these records with in-the-field practices to ensure safety, and to implement other complementary measures that will enhance the

⁵ The SED Report states, "the operating position for valve 3352-E2A reflected on the map did not match the actual field operating position. . . ." Milpitas 2012 Incident Report (Sept. 11, 2014) (SED 8). The valve should be referred to as, "valve on plat 3352-E2." The SED Report also states, "[t]he corrective action plan requires the Supervising Distribution Engineer for South Bay to tailboard all personnel in the Gas T&R Department. . . ." Milpitas 2012 Incident Report (Sept. 11, 2014) (SED 11). The PG&E Event Report corrective action plan requires the Supervising Distribution Engineer for South Bay to tailboard all South Bay Gas Planning personnel on communicating to the Gas T&R Department to validate valve position prior to approving a job until the new "Distribution Clearance Procedure" is developed and approved. The SED Report further states, "[t]he plat map indicates a ½-inch plastic line inserted into a steel service adjacent to the incident location at [Redacted] Independence Avenue in 1986." Mountain View Incident Report (March 6, 2014) (SED 18). Upon further review of its records, PG&E believes that the adjacent Independence Avenue service was inserted in 1970.

safety of its gas distribution system. The following sections identify and describe actions that, while not necessarily adopted directly in response to the incidents in the OII, will reduce and minimize the risk that such incidents might occur going forward.

1. PG&E's Objectives in Managing Its Gas Distribution Assets

PG&E has published a formal policy statement⁶ regarding its commitment to safe, reliable, and affordable management and operation of its gas assets for customers, the public, and its employees and contractors. This statement enumerates principles that guide PG&E's asset management practices, including: maintaining accurate, traceable, verifiable, and complete asset information; maintaining up-to-date documentation to manage gas assets throughout their life cycle; ensuring that information is effectively communicated and available to those who need it to perform work; and implementing effective controls to achieve consistent and integrated asset management practices. PG&E conceptualizes these principles as *accuracy*, *accessibility*, and *controls* (as they pertain to its recordkeeping practices). Each of the records improvement efforts detailed in this Report is intended to further one or more of these objectives.⁷

2. Accuracy Improvements

PG&E has undertaken substantial efforts to improve the accuracy of its gas distribution asset data so that PG&E's asset management systems incorporate the best and most complete available information.

⁶ Gas Operations Policy TD-01.

⁷ The primary records used by PG&E's gas distribution workforce in association with the six incidents are plat maps, as-built packages, gas service records, and leak repair forms, also known as "A-Forms."

a. The Gas Distribution GIS Makes Asset Information More Accurate and Accessible.

PG&E is currently implementing a gas distribution geographic information system (“GD GIS”)⁸ as part of its multi-year, multi-million dollar Pathfinder Project, which is a foundational effort to make the information that PG&E collects, stores, and manages in relation to its gas distribution pipeline system and its related business processes more accurate, complete, and accessible. Pathfinder consolidates multiple sources of gas distribution asset data, including information historically kept in paper records, into a single integrated GIS data model.

The GD GIS is a geospatial model of PG&E’s gas mains and services that organizes and stores distribution asset data such as location, connectivity, and components. GD GIS enables PG&E personnel to view and analyze key distribution system components and associated characteristics, as well as relevant third-party geospatial data like roads and seismic faults, at specific reference points anywhere in the gas distribution system. A GD GIS user can click on an asset or run a query (user search) to call up asset descriptions. Implementing GD GIS not only improves the accessibility of asset descriptions but also their accuracy. During the process of converting PG&E’s existing distribution asset data to GD GIS, the new system automatically flags anomalies in the data being converted—such as differences among descriptions of assets mapped across contiguous plat maps—through a Problem/Action Report (“PAR”), and allows these to be investigated and reconciled. The PAR process began in late 2012 and resulted in the implementation of approximately 25,000 PAR resolutions to address specific data issues found in the source data.

⁸ A geographic information system (GIS) is a computer system designed to capture, store, analyze, manage, and present all types of spatial or geographical data. The system enables users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.

The GD GIS addresses some of the recordkeeping issues that contributed to the incidents in the SED investigation reports. For example, data captured from Gas Service Records and integrated into GIS enabled PG&E to create an inventory of 28,000 service stubs in a centralized database.⁹ These electronic records will enable PG&E to more efficiently and effectively execute its stub monitoring program.¹⁰ Additionally, gas distribution asset data is converted into GD GIS relative to an accurate land base dataset, which improves the spatial location accuracy of the gas distribution assets. GD GIS also increases PG&E's ability to automate paper-based work flow. It will improve PG&E's gas distribution system planning capabilities, including clearance management and decisions by Gas Planning in modeling gas flow as it accelerates isolation and system reconfiguration research, both in advance of planned maintenance or in response to an emergency.

As of December 11, 2014, PG&E had converted approximately 27,600 of the 42,000 miles of gas distribution mains and 2.3 million out of 3.3 million services into GD GIS. PG&E is on track to complete the gas distribution system-wide data conversion by the end of 2015.

b. Speeding up Accurate Transfer of Post-Construction Information to Asset Maps

PG&E identified the potential to improve the speed with which changes to assets in the field are reflected in its gas distribution asset maps. To execute this effort, PG&E first searched for all open work orders associated with distribution mains and services installation or modification in Gas Operations' work and order management systems. PG&E identified more than 61,000 open gas work orders. PG&E researched each work order to identify those instances

⁹ A service stub is a capped, pressurized service pipe extending from the main pipe but not connected to a riser and its associated meter.

¹⁰ PG&E's procedure TD-9500P-16, Deactivation and/or Retirement of Underground Gas Facilities, outlines the steps for monitoring and removing stub services.

where construction had been completed, but was not yet mapped. This yielded approximately 18,000 distribution work orders for which PG&E's plat maps had not yet been updated for various reasons, including PG&E's mapping group not having received an as-built package, or having received an incomplete as-built package.¹¹ By December 2014, PG&E had updated its distribution asset maps for all but a few hundred missing as-built packages. PG&E continues to research and resolve issues that prevent mapping of the remaining jobs.

In early 2013, PG&E created an as-built checklist designed to promote accuracy, uniformity, and efficiency in creating as-built records. PG&E also conducted a series of as-built procedure trainings based on a Field-As-Built Handbook that provides additional clarity and a user-friendly procedure for our employees and contractors on how to complete an accurate as-built, including gas service records. PG&E has trained roughly 600 employees to date in these procedures. In addition to these trainings, PG&E's Mapping Department now publishes a weekly report that provides up-to-date performance information for all as-builts, tracks every job that has exceeded the target time for any phase of the as-built process, and conducts meetings with personnel to address those jobs.

Prior to 2013, PG&E used a metric that measured the percentage of as-built packages mapped¹² within 90 days. Beginning in 2013, PG&E significantly enhanced its process and associated quality protocols. As a result, between June 2013 and December 2013, PG&E mapped 100 percent of the jobs within 90 days. In addition, in 2013 PG&E began using more rigorous process control measures for determining the average time from construction work

¹¹ PG&E defines as-builts as a completed job folder which includes, but is not limited to, construction redline drawings, job estimates, material requisitions, and other related records associated with the as-installed information for the respective assets. Once construction and the associated documentation have been completed, the as-built job folder is used by mapping to update the asset management mapping systems.

¹² "Mapped" means that the change to the asset or the installation of a new asset is recorded in GD GIS.

completion to the finished mapping (including all cross-checks for accuracy and procedures), with the expectation that the vast majority of packages would be mapped in significantly fewer than 90 days. Average completion time dropped from 75 days in 2011 to 34 days in 2013 to 29 days in 2014, below the 2014 target of 32 days. The results of this initiative are more consistent and uniform delivery of information to mapping, improved accuracy of reports, reduced miscommunication, and shortened time to incorporate as-built information into PG&E's mapping system.¹³

c. Updating Records with Leak Repair Information

PG&E is using data captured electronically in PG&E's leak repair records (A-Forms), which prior to 2014 was captured primarily on paper records, to update asset data in GD GIS, thus further improving the accuracy of gas distribution asset records.¹⁴ This enables PG&E to compare the asset information captured on the mobile A-Form with the information in GD GIS and thus continue to further improve the accuracy of the gas distribution records as work is completed on assets that otherwise might not have been excavated.

d. Using Customer Billing Data to Verify Asset Records

As part of the process of validating its gas distribution asset data, PG&E compared distribution asset maps with the meter locations included in its customer billing data. This effort, initiated in 2013, was intended to identify and correct gaps in gas distribution records by comparing meter locations in PG&E's customer care and billing database to distribution asset maps and Google Earth. PG&E investigated any exceptions and identified assets not included on

¹³ PG&E also developed enhanced standards and procedures to improve the quality of as-built packages. For example, the construction crew supervisor must validate the as-built package by verifying that all documentation is complete.

¹⁴ An A-Form is initiated when PG&E identifies a gas leak and serves to document information about the leak from identification through re-check and/or repair.

PG&E's distribution asset maps, which were subsequently added to the maps. This information was communicated to and shared with the Commission at a meeting with the SED in July 2014.

3. Accessibility Improvements

The recordkeeping improvement efforts discussed in this section are intended to improve the accessibility of PG&E's gas distribution asset data by PG&E employees and contractors, providing timely information needed to perform work and also allowing personnel to provide input for updating maps while still on site.

a. Making Mobile Access Tools Available to Field Personnel

PG&E is in the process of developing end-to-end paperless maintenance processes. Today, these efforts are taking place primarily within gas transmission, but they have also enabled most gas distribution employees performing leak repairs to initiate A-Forms, take pictures of completed work, document geo-spatial location of repairs, and record required information electronically. Follow-up controls are in place; as part of post-implementation monitoring, individual A-Forms are randomly sampled for quality, and data in SAP from the mobile A-Forms is reviewed for quality and accuracy. Additionally, PG&E supervisors review and sign off on electronic A-Forms as required.

PG&E is also providing crews with mobile access to digital gas distribution system maps via laptops. Touch-screen access to layers of digital maps provides a detailed matrix of streets and PG&E's gas lines and electric cables. These maps are updated daily and pushed to each laptop in the field to keep gas crews up to date with the latest information included in the asset management mapping systems.

In 2012, PG&E's locate-and-mark ("L&M") personnel moved from older mobile technology to tablets to access L&M tickets and relevant maps, and to record completion of these tickets. In November 2014, PG&E also began an effort to use mobile technology and GD GIS to

identify situations where PG&E personnel need to stand by when third parties are excavating or performing other work adjacent to PG&E's critical facilities.

b. Making Gas Service and Distribution Records Accessible Electronically

PG&E has scanned the approximately 6.3 million paper gas service records ("GSRs"¹⁵)—over 12 million pages—associated with 3.3 million gas distribution services to gather additional gas asset data attributes that were not in the legacy dataset that GD GIS replaces.¹⁶ PG&E plans to develop a process for continuing to scan new GSRs as they are created. Technology to allow field personnel electronic access to the scanned records is in the pilot phase through a program in San Francisco, which allows any employee or contractor with GD GIS access to search for and obtain a GSR electronically by install job order, wall map, plat, block, or address.

In 2015 PG&E will begin to implement its Gas As-Built Collection initiative to collect, scan, and make available electronically all of the gas distribution as-built job records to anyone with access to PG&E's web viewer system. This effort will digitize approximately 56 million records over several years.

4. Controls Improvements

PG&E continues to build ongoing controls into its work processes to bolster the accuracy and accessibility of its records, provide employees and contractors with the information they need to perform work safely, and to create tools to allow issues to be surfaced and addressed as they arise.

¹⁵ A gas service record is in place for the life of a gas service and documents information such as installation date, type of material installed, and diameter of the service.

¹⁶ PG&E's mapping system, much like the rest of the utility industry, began with hand-drawn Mylar maps. Near the turn of this century, PG&E adopted Computer Aided Design (CAD) technology through a system called Gas and Electric Mapping System ("GEMS"). In 2008, PG&E made further advancements in the mapping tool, providing more functionality for estimating purposes. In 2011, PG&E updated its GEMS system to a newer version of CAD technology through its adoption of the Mapping and Estimating Tool (MET). In 2012, PG&E began conversion of its MET to GD GIS.

a. The Corrective Action Program Tracks Gas Asset Issues from Inception to Resolution.

In October 2013, Gas Operations launched the Corrective Action Program (“CAP”), a universally available system that records issues submitted by employees or contractors. These issues are tracked and resolved from entry by an employee or contractor to resolution. Employees or contractors can report incidents, potential problems, and corrective actions, including records-related issues, through CAP. A worker can make a CAP report through an internal PG&E website, by telephone, or through a smartphone application. Once a CAP report is received, an owner is assigned to assess and rectify the issue. In some cases, CAP entries trigger requirements for root cause analysis to identify the optimal resolution. A detailed multi-media communication effort involving email correspondence, posters, video, print materials sent to employee’s homes and desks, and collateral sources such as key fobs, assures a broad awareness of the program. As of the end of November 2014, more than 1,300 members of the Gas Operations workforce had entered more than 3,800 CAP items.

To date, CAP has aided the generation, receipt, and processing of mapping corrections because of its accessible platform, built-in training, and availability to report and track issues, as described below.

PG&E has implemented a procedure listing the steps that employees must follow to address a gas map correction submitted through CAP. This procedure was developed to take advantage of PG&E’s CAP as a robust approach to identify, report, create, process, track, and audit map corrections. The mapping corrections are assigned to a Mapping Corrections team which ensures that each issue is processed and addressed in a timely manner. As of December 2014, 143 identified mapping corrections were submitted in CAP, most of which have been processed and updated.

b. An Initiative to Strengthen Records Management

In 2012, PG&E Gas Operations began a multi-year management initiative to strengthen records governance, guided by the ARMA¹⁷ International Information Governance Maturity Model. In 2013, Gas Operations published two standards—the Records and Information standard¹⁸ and the Vital Records Management standard¹⁹—strengthening the operational protocols for identifying, maintaining, organizing, and retaining records.²⁰ As of September 2014, Gas Operations had identified its vital records. In November of 2014, Gas Operations published a record retention schedule whose benefits include organization-wide identification of records to be maintained for the life of an asset, the business purpose the record serves, and the ability to track record retention by code requirement.

The records management initiative is currently underway for hardcopy records and will continue for all field locations. The hardcopy records from the majority of PG&E’s Gas Operations facilities have been inventoried, sorted for audit and business purposes, and, where appropriate, sent off site for long-term retention. In 2015, PG&E will begin the electronic records portion of the initiative, with a focus on information controls and security.

A key element of the records management initiative is employee engagement. In 2014, nearly all (98%) of the Gas Operations workforce received records and information management training, which included information about defining a record, provided examples of the difference between a record and a non-record, and described electronic and paper records. In

¹⁷ Formerly, the “Association of Records Managers and Administrators.”

¹⁸ TD-4016S.

¹⁹ TD-4017S.

²⁰ PG&E’s Records Management Policy (GOV-01) and Corporate Records Management Standard (GOV-7101S) were both issued in September 2012. These documents superseded the PG&E Corporate Records Policy dated May 1996 and the Corporate Record Retention and Disposal Standard (GOV-7001S) dated October 2010.

addition, as of November 2014, 110 required Records and Information Management (“RIM”) coordinators had been identified to facilitate local records management across and within PG&E’s local offices. Coordinator responsibilities include assuring that records for assigned locations are the most current, providing support and communication regarding version control of records, and maintaining physical record inventories. Each local headquarters office includes a RIM information board that identifies the local RIM coordinator, the link to the program’s website, information about the program, and contact information. In addition to the RIM coordinators, Gas Operations has nine positions dedicated to Records and Information Management governance implementation and oversight.

c. Best Practice Asset Management Certification

A key element of Gas Operations’ Gas Safety Excellence program is the development of a formal asset management program. Gas Operations achieved certification in the best practice asset management certification offered by the British Standards Institute, Publicly Available Specification (“PAS”) 55, and the International Standards Organization certification (ISO-55001) in May 2014. PAS 55 and ISO 55001 are designed for long-lived large-scale asset systems like utilities, railroads, and airports. The certification process includes an initial readiness assessment, a certification audit, surveillance visits, and a recurring recertification audit, all conducted by a recognized third-party accreditation firm.

The standards require that PG&E’s Gas Operations Organization develop a strategic plan and then systematically execute that plan to optimally and sustainably manage risks, assets, and expenditures over a defined life cycle. The standards assure alignment between Gas Operations’ strategic plan, gas asset management policy, standards, objectives, and work plans. With respect to records, the standards require that certified entities continuously work to know what

information employees need to perform their work, to make that information readily available when employees need it, and to make that information as accurate as possible.

These certifications provide objective validation that our gas system is on the right path to becoming one of the safest systems in the United States, demonstrating 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.

In November 2014, PG&E's certification auditor, Lloyd's Register, conducted a surveillance visit at 13 sites involving interviews with some 75 employees. Lloyd's issued its final report on December 12, 2014, allowing PG&E to maintain its certification. No major or new minor non-conformances were identified as part of the surveillance visit.²¹ Lloyd's Register further commented that PG&E had made acceptable progress in records management and was on track to achieve ARMA Level 3 maturity by 2016. The ongoing audit and recertification requirements provide an independent assessment that is not only standard-based but also based on the performance that PAS 55 certification auditors observe at many high-performing international companies. Gas Operations benefits greatly from the opportunity to undergo an independent and industry-based review of our asset management system on a regular basis.

d. Gas Operations Quality Management

In 2011, PG&E Gas Operations established a Quality Management ("QM") group to conduct quality assurance reviews of work activities and key processes, including engineering,

²¹ Lloyd's Register identifies a major non-conformance when objective evidence demonstrates that a required element has not been documented, implemented, or maintained, therefore preventing an applicant from attaining certification. It identifies a minor non-conformance when objective evidence demonstrates a weak element in the management system, procedure, registration or control for the effective implementation of the standard and requires that the applicant take corrective action on a prescribed timeline to attain or maintain certification.

design, construction, maintenance, and operations, to validate adherence to new procedures and processes and identify gaps and areas for improvement. The QM group performs the quality assurance reviews for gas distribution record-keeping activities, including reviews associated with as-built and gas service record quality. The QM group also solicits employee feedback and input on matters needing additional review. The goal is continual improvement through identification and mitigation of problems or gaps.

D. Actions to Improve Operational Safety and Backstop Recordkeeping Improvements

In addition to the many initiatives undertaken to improve records accuracy, accessibility, and controls, PG&E has undertaken numerous measures to further reduce risk by improving the safety of its operations. The efforts described here complement PG&E's recordkeeping enhancements and contribute to safe operations of the gas distribution system.

1. Addressing the Challenge of Hidden Plastic Pipe Inserts with the Gas Pipeline Carrier Checklist

Unmapped plastic pipe inserts inside of steel distribution pipelines can pose safety challenges for our customers and our field personnel, as evidenced by the Mountain View and Carmel-by-the-Sea incidents. In response to the 2014 Carmel-by-the-Sea incident, and consistent with PG&E's continuous efforts to respond to identified safety challenges, in March 2014 PG&E implemented the Gas Carrier Pipe Checklist (the "Checklist"), which requires field personnel to verify that steel pipe has not been inserted with plastic prior to welding or tapping. PG&E communicated to gas operations personnel performing work on distribution pipe that could be inserted with plastic the need to follow the Checklist.

The Checklist prescribes a series of steps to ensure that all feasible measures are taken to confirm that unseen plastic inserts are not present prior to any work being performed. First, the Checklist requires the employee to review the most current records, including plat sheets, gas

service records, and as-built records, to determine whether the job package is current and complete and that the facility details on the construction documents match the records. Second, the employee performs a jobsite review to determine whether the visible above-ground conditions in the field (in other words, the location and type of gas service risers) match the records. Finally, the employee must perform a physical verification to determine whether plastic is present, including determining whether evidence of insertion can be found at service risers (e.g., pre-fabricated service-head adapters). If at any point the records do not match either the construction documents, jobsite, or physical conditions, or the employee simply suspects hidden plastic pipe inside of steel pipe, the employee must stop all work and contact his or her supervisor for guidance.

In April 2014, the Checklist was added to the Distribution Construction Quality Control protocol and is now part of PG&E's ongoing Quality Assurance process. QM performs both random and targeted sampling of use of the Checklist through in-person visits to work sites. Assessments may be done either in real-time (by observing work crews as they go through the Checklist), or by a separate check in which the assessor repeats the work crew's task to provide a thorough evaluation that all steps were followed. As part of its continuous improvement efforts, PG&E expects to implement a revised and expanded Checklist, which is included in its Records Validation Project roll-out in 2015.

The objective of PG&E's Records Validation Project is to enhance process controls for validation of asset information during the design phase and prior to construction. The Project will further strengthen PG&E's processes to identify potential discrepancies between field conditions and records during both the design and construction processes and to allow such discrepancies to be corrected. Beginning in 2015, PG&E will provide construction personnel

with updated jobsite pre-work safety checklists and forms to validate that the site is safe for excavation and that the assets they are working on match PG&E's records. PG&E will also issue procedures describing the steps PG&E's engineers, estimators, and field personnel will take to request that field personnel validate assets against records used during the design phase if potential discrepancies are identified during that phase of the project. As is done today, if the records do not match the as-found facilities, the construction crews will be instructed to stop the job and make contact with personnel who can provide further guidance. The result of this initiative will allow PG&E to continue to identify plastic inserted pipe, stubbed pipe, and other discrepancies before work begins.

2. Improvements to Reduce the Risks of Damage to Pipelines During Excavation

Dig-in incidents to PG&E underground facilities during excavation pose safety issues, both on PG&E's system and in the broader natural gas utility industry. As demonstrated in the Castro Valley, Morgan Hill, and Milpitas incidents, damage to underground pipelines during excavation work not only poses safety risks, but also inconveniences customers. Accordingly, PG&E continues to improve its L&M processes, and PG&E executes targeted public awareness programs with the goal of reducing dig-ins by educating homeowners and contractors regarding safe excavation practices.

In March 2014, PG&E issued a new Damage Prevention Handbook²² that contains all applicable, up-to-date work steps for locating and marking PG&E's gas and electric facilities. The revised methodical format outlines the process for locating facilities with pictures, job aids, and step-by-step instructions.

²² TD-5811M, Rev. 1.

PG&E also has expanded its L&M training program. Trainees must complete a four-day classroom course, including hands-on instruction with L&M tools. In addition, on-the-job training includes an 80-hour ride-along with a journeyman supervisor, during which the trainee must complete a written verification exercise based on the Damage Prevention Handbook.

PG&E has also improved its organization and employee incentives to ensure its L&M personnel are among the best in the industry. PG&E created a direct line of progression to permit L&M employees to advance their experience level and resulting compensation within L&M to increase the number of experienced L&M employees. PG&E reorganized the operational structure to add supervisors and a superintendent position across its service territory whose sole responsibility is leading the L&M function. These changes are designed to create supervisory focus, consistency, and streamlined communication within L&M.

In 2011, the QM group began reviewing L&M jobs after completion to verify work accuracy and completion. QM assessors follow behind the L&M personnel and repeat the tasks, including re-locating the same facilities personnel just marked. QM assessors use a scorecard to evaluate the L&M personnel, including determining whether the facility is marked within 24 inches of its location, and whether the employee properly documents and photographs the work. This scorecard is updated to reflect new standards and procedures, feedback from leadership, and assessor field experience. Assessment pass rate results are shared with supervisors and superintendents to improve individual and team performance.

Because excavation accidents can occur despite PG&E's best efforts to improve its L&M processes, PG&E also educates homeowners and contractors to encourage the use of safe excavation practices. In 2014, PG&E rolled out several programs, including the new Gold Shovel Program, the updated Habitual Offender Program, and the new Strike Team pilot.

The Gold Shovel Standard Program recognizes contracting companies who consistently adhere to industry best practices in their excavation work. Qualifying Contractors must have two or fewer at-fault dig-ins in the previous twelve months. They are also required to maintain practices approved by PG&E, including a dig-in prevention policy with four basic elements: management commitment to obey the One Call (“Call Before You Dig”) rules, employee acknowledgment that they will follow the rules and understanding that they may speak up without fear of retribution, training requirements for anyone putting a shovel in the ground before they go to work, and after-action review requirements if an incident occurs. In 2014, the Common Ground Alliance, a utility industry organization devoted to damage prevention, presented the Gold Shovel Standard Program as an industry best practice, based on PG&E’s efforts.

The Habitual Offender Program uses data from recent dig-ins to identify excavators who are more likely to dig into PG&E’s facilities. Once a habitual offender is identified, the program considers and recommends appropriate follow-up actions, including working with the contractor to reduce the likelihood of future incidents and settle PG&E’s outstanding damage claims. In some cases, habitual offenders have agreed to become public advocates for the One Call Program as part of claims settlement. Follow-up actions may also include referring the matter to the Contractor State License Board, Cal/OSHA, and/or the district attorney.

In June 2014, PG&E created the pilot Strike Team program. The Strike Team members patrol areas with high dig-in rates and intercept potential dig-ins before they happen. During the Strike Team’s four month pilot, dig-ins by third-party contractors were reduced by approximately 30 percent. The Strike Team also gathered and analyzed additional data to better understand why dig-ins occur.

Going forward, PG&E is developing a “Pre-Dig Verification Form,” which was created in response to dig-in incidents involving PG&E employees or contractors working for PG&E. Before any excavation work is performed, the PG&E work crew or contractor will verify that a records review and visual inspection of physical assets have been conducted.

3. The Gas Distribution Control Center Improves Monitoring, System Controls, and Emergency Response.

The Gas Distribution Control Center (“GDCC”) is a central component of PG&E’s commitment to safety for our employees, customers, and the public, and further enables PG&E to respond to emergency conditions in a timely manner. GDCC staff monitors gas distribution system pressure, flow, volume, routing, and normal, abnormal, and emergency conditions in real time, and centralizes such data so that GDCC staff can facilitate Gas Operations Coordination, including emergency response action, as necessary. The GDCC is centrally located together with the Gas Transmission Control Center and Gas Dispatch and operates twenty-four hours a day, 365 days a year. When PG&E began development of the GDCC in late 2011, it consulted with industry experts and compared its practices with those of other utilities. The GDCC went live in April 2013, and, in August 2013, PG&E moved the GDCC to the Gas Operations Headquarters in San Ramon.

The GDCC represents a shift away from a monitor-and-respond philosophy and technologies commonly used throughout the gas distribution industry, which produce time lags between data collection and preventative control action for the distribution system, to a monitor-and-prevent philosophy, with an emphasis on predictive assessment and proactive control. The GDCC uses a Supervisory Control and Data Acquisition (“SCADA”) system to monitor the flow of gas. The SCADA system uses alarms tied to monitors in the field to notify GDCC staff of operating conditions that need attention. As of December 2014, 440 SCADA points have been

installed along the gas distribution system, with a goal to install 3,400 units by the end of 2016. These SCADA monitoring points have increased visibility and improved constant monitoring in normal, abnormal, and emergency conditions.

When conditions arise that require response and coordination, the GDCC uses the Tactical Analysis Mapping Integration (TAMI) tool, which provides situational awareness both for the control center and for local personnel. TAMI creates two-way visual information about site conditions, assets, personnel, crew, and work locations that the GDCC and field personnel, through their mobile devices, share in real time. With TAMI, when decisions need to be made about abnormal conditions in the field, the PG&E work force can rely on both verbal and visual information to work with the Control Center to develop a course of action.

4. A Recently Implemented Clearance Procedure Increases the Effectiveness of the GDCC.

PG&E has recently implemented a gas distribution clearance process to permit the GDCC to oversee safety monitoring and risk mitigation from the inception of a project through its completion. Now, an approved clearance is required every time a planned construction, maintenance, or operational change activity will affect the flow of gas within PG&E's gas distribution system. Clearances are prepared with the input of the team that will perform the work, the engineering team, and the team that executes the clearance. Clearance initiation includes identifying a way to safely isolate the work area, maintain service to customers, and to develop the steps that will be taken to isolate the work area. Every request for a clearance must be requested and scheduled through, and then managed by, the GDCC. Every person who writes, endorses, or grants a clearance must be trained and must pass a knowledge test. Controls have been implemented to prevent untrained personnel from participating in the clearance process. Currently, over 2,000 employees and contractors have completed training.

Once the work that required a clearance is completed, the requester contacts the GDCC. The GDCC clearance coordinator confirms whether the changes to the asset went as planned, and requests a copy of the completed clearance to be sent to Gas Control within five days, which is tracked in PG&E's work management system. Upon receiving notification that the clearance work is complete, the mapping department's goal is to update the asset management mapping systems within 24 hours, if updates are required. Clearance coordinators confirm that all maps are updated and the GDCC also performs audits to ensure that the updated maps accurately reflect the work performed as described in the clearance.

Also, in October 2014, QM added reviews of the GDCC clearance procedures to its QA protocols. The protocol applies both to PG&E employees and to contractors. It determines how many times a clearance was required compared to how many times a clearance was written and executed, and assesses adherence to the steps outlined in the clearances. Any step that is missed in the clearance process is considered a failure.

As PG&E installs additional pressure and flow monitoring equipment and system visibility increases, the GDCC should become even more effective in monitoring events and gaining centralized control of developing incidents, dispatching crews, and maintaining contact with the crews to begin directing remedial or isolation measures even before the crews arrive on site. In sum, GDCC is continuously expanding and developing PG&E's ability to recognize issues and develop plans ahead of emergencies for effective emergency preparedness and response.

5. Enhanced Gas Mapper Manual and Mapping Apprenticeship Program

In 2014, PG&E reviewed and updated its Gas Mapper Manual to cover new practices and enhanced procedures relating to improvements such as the GD GIS. The manual provides

detailed steps and pictorials for PG&E's mappers. PG&E also updated its Mapping Apprenticeship Program ("MAP"), which is training that will be undertaken by all new and existing mappers. The updated MAP incorporates recently implemented processes, leverages on-the-job training, and includes a number of newly created job aids. All of these enhancements will further hone the skills and proficiency levels of PG&E's mappers and will facilitate more accurate and timely performance of the mapping function, leading to more accurate and timely updated records. The updated Gas Mapper Manual and MAP are scheduled for release in early 2015.

6. Empowering Employees and Contractors to Stop Work Due to Recordkeeping Inconsistencies

PG&E recognizes that accurate and reliable records are the foundation of the everyday work that employees and contractors perform and are essential to public safety. PG&E further recognizes that all employees and contractors play a role in keeping records current and ensuring that PG&E uses accurate records for every job. To empower employees and contractors to take an active role in records accuracy, PG&E has established via multiple leadership messages an expectation that all employees and contractors stop a job if they discover a recordkeeping inconsistency.

III. LEGAL CONTENTIONS

As the preceding sections show, PG&E has an unwavering commitment to continuously improving not only its gas distribution system recordkeeping practices but also the safety of its distribution system, and complying with all applicable rules, regulations, and statutes. PG&E is also committed to continuing to work with the Commission to pursue these important goals. While we acknowledge that more work remains to be done to enhance our gas safety

recordkeeping, PG&E respectfully disagrees that it has violated the statutory provisions and regulations identified in the OII and in the SED Reports for the incidents referenced in the OII.²³

Section 451: The SED Reports assert multiple violations of Cal. Pub. Util. Code § 451.²⁴ Section 451 is a ratesetting provision; it is located within the Code Article that the Legislature entitled “Rates.”²⁵ It cannot serve as a free-floating source of safety obligations. The brief reference to “safety” simply identifies one of several considerations the Commission must balance and evaluate in setting rates.²⁶ The paragraph containing the reference to “service” that “promote[s]” safety, health, comfort, and convenience” has as its antecedent the previous paragraph, which states that charges for all such “service” shall be “just and reasonable.” The entire statutory provision, therefore, simply sets up the process by which just and reasonable utility rates will be established, and nothing more. Nor does Section 451 impose a freestanding and absolute safety obligation whose violation can be punished. Such an obligation—which, even if it were possible to achieve, would require “gold-plated” rates²⁷—does not comport with the text’s requirement that the quality of “service, instrumentalities, equipment, and facilities” a utility provides must “promote” “safety, health, comfort, and convenience,” not achieve them

²³ OII at 2-7.

²⁴ Carmel-by-the-Sea Incident Report (Nov. 13, 2014) (SED 19, 31, 33-34).

²⁵ See *People v. Hull*, 1 Cal. 4th 266, 272 (1991) (“[I]t is well established that ‘chapter and section headings [of an act] may properly be considered in determining legislative intent . . . and are entitled to considerable weight.’”) (internal citations and punctuation omitted).

²⁶ The Commission itself has long acknowledged that it must perform such balancing. See *Pac. Tel. & Tel. Co. v. Pub. Utils. Comm’n*, 34 Cal. 2d 822, 826 (1950) (defining the Commission’s primary purpose as “insur[ing] the public adequate service at reasonable rates without discrimination”); see also *Application of Pac. Gas & Elec. Co.*, D.00-02-046, 2000 Cal. PUC LEXIS 239, at *46 (“Our charge is to ensure that PG&E provides adequate service at just and reasonable rates”).

²⁷ See, e.g., *Application of Pac. Gas & Elec. Co.*, D.00-02-046, 2000 Cal. PUC LEXIS 239, at *65 (explaining in a rate case: “Section 451 does not require that ratepayers pay for the best service possible from a technological standpoint. We do not intend to set revenues at a level to provide funding for what some parties have called ‘gold-plated’ service”).

perfectly. Thus, a conclusion that the facts alleged in the SED Reports constitute violations of § 451 would constitute a misapplication of the statute.

Government Code § 4216.3: Section 4216.3(a)(1) of the California Government Code prescribes standards for marking and locating “subsurface installations,” including gas pipelines, prior to excavation by third parties. In particular, § 4216.3(a)(1) requires a utility’s field personnel to “locate and field mark the approximate location and, if known, the number of subsurface installations that may be affected by the excavation *to the extent and degree of accuracy that the information is available either in the records of the operator or as determined through the use of standard locating techniques other than excavating.*” (Emphasis added.) PG&E disagrees that it violated § 4216.3(a)(1) in connection with the incidents referenced in the OII.²⁸ That section requires the operator to locate and mark underground pipelines to the extent their location is *available* from records or determinable from standard techniques; it does not impose strict liability on the operator any time the information is not ascertainable from those sources. If the latter were the case, the statute would speak in absolutes rather than in terms of “the extent and degree of accuracy that the information is available.”

PG&E is committed to ensuring that its records are as accurate as possible, as discussed in the preceding sections. By this argument, PG&E does not intend to minimize the dangers that can arise from improper field marks. In practice, however, locate and mark procedures are dependent upon records, locating instrument, field personnel, third-party excavators, contractors, and many other factors, any one of which could contribute to an accidental dig-in.

²⁸ Morgan Hill Incident Report (Sept. 4, 2014) (SED 4, 7); Milpitas 2013 Incident Report (Sept. 5, 2013) (SED 12-14).

49 C.F.R. §§ 192.605(a) and (b)(3): The SED Reports assert that PG&E violated 49 C.F.R. §§ 192.605(a) and (b)(3).²⁹ These provisions prescribe the manner in which a pipeline operator must maintain and follow its internal written procedures manuals. They do not speak to the accuracy of substantive information recorded in a pipeline operator's records, such as, for example, marking a pipeline location on a plat map.

Specifically, § 192.605 prescribes standards for maintaining a “[p]rocedural manual for operations, maintenance, and emergencies.” Subsection (a) requires an operator to maintain and follow a procedures manual for “conducting operations and maintenance activities and for emergency response,” and subsection (b)(3) requires the manual to include procedures for making “construction records, maps, and operating history available to appropriate operating personnel.” However, nothing in the SED Reports suggests that PG&E failed to maintain adequate written procedures manuals, including procedures for making available “construction records, maps, and operating history” to its personnel on the ground. Rather, the Reports focus on the accuracy of the substantive information reflected in PG&E's records, claiming, for instance, that PG&E violated these provisions by failing to accurately transcribe a valve position³⁰ or a plastic line insertion³¹ in its records. Such assertions are based on a fundamental misreading and misapplication of those regulations, which deal with procedures, not substantive

²⁹ Castro Valley Incident Report (Jan. 3, 2012) (SED 1, 3); Morgan Hill Incident Report (Sept. 4, 2014) (SED 4, 7); Milpitas 2012 Incident Report (Sept. 11, 2014) (SED 8, 10-11); Mountain View Incident Report (March 6, 2014) (SED 15, 18); Carmel-by-the-Sea Incident Report (Nov. 11, 2014) (SED 19, 31-32).

³⁰ Milpitas 2012 Incident Report (Sept. 11, 2014) (SED 8).

³¹ Mountain View Incident Report (March 6, 2014) (SED 15, 18).

information.³² Moreover, to the extent that the SED’s legal contentions are based on alleged failures by field personnel to follow PG&E’s internal procedures,³³ we do not concede that the present factual record describes actionable failures to follow internal procedures. Not every mistake by personnel constitutes a violation of the federal pipeline safety regulations. More investigation is necessary to determine whether the alleged human errors amount to violations of the identified regulations.³⁴

49 C.F.R. § 192.615(a)(4) and (a)(7): These regulations require that a pipeline operator “establish written procedures to minimize the hazard resulting from a gas pipeline emergency.” Subsection (a)(4) requires written procedures to provide for “the availability of personnel, equipment, tools, and materials” at the scene of an emergency, and subsection (a)(7) requires the written procedures to address “making safe any actual or potential hazard to life or property.” The alleged violations of § 192.615 relate to the March 3, 2014 explosion in Carmel-by-the-Sea.³⁵ PG&E does not agree that the facts concerning this incident as known to date constitute violations of § 192.615. While the Incident Report takes issue with the actions of PG&E personnel on the ground at the site of the accident, it does not support the conclusion that PG&E’s written procedures were inadequate. It is not possible for written procedures—even

³² One Incident Report also alleges a violation of 49 C.F.R. § 192.13(c), which similarly requires a pipeline operator to maintain and follow “the plans, procedures, and programs that it is required to establish under this part.” Castro Valley Incident Report (Jan. 3, 2012) (SED 1, 3). Again, nothing in this regulation purports to impose a duty on a pipeline operator to maintain 100% accurate substantive records.

³³ Milpitas 2012 Incident Report (Sept. 11, 2014) (SED 10).

³⁴ The SED Report also references PHMSA Advisory Bulletin ADB-02-03, which reminds operators to ensure the accuracy of their records. (SED at 11, 18, 32.) As numerous courts have confirmed, such administrative agency interpretations, advisories, or guidance are not binding or enforceable. In addition, ADB-02-03 has never, to our knowledge, been held to create a legal obligation to maintain perfectly accurate records. Indeed, meeting such a legal standard would be unattainable for any large-scale operator.

³⁵ Only the SED pertaining to the Carmel-by-the-Sea incident alleges violations of these sections. Carmel-by-the-Sea Incident Report (Nov. 11, 2014) (SED 19, 33-34).

procedures that specifically comply with federal safety standards—to anticipate every possible circumstance that might arise and to prescribe every possible action by personnel that someone in hindsight may deem to have been preferable. PG&E appreciates that SED believes that the Company could have taken additional steps to ensure the safety of the Carmel site and outfitted its field personnel with additional tools, but PG&E does not agree that not specifying such measures in its procedures documentation—which conforms to recommendations made during Commission audits—constitutes a violation of § 192.615.

Engineering Standards and Practices: The OII asserts that PG&E generally failed to adhere to “good and accepted engineering standards and practices.”³⁶ This standard is not defined in the OII, nor is it further clarified in the SED Reports.³⁷ On this record, PG&E does not agree that its actions failed to satisfy “good and accepted engineering standards and practices.” To the contrary, as explained above, PG&E’s actions are consistent with industry practices.

Due Process Concerns: Finally, the Due Process Clauses of the United States and California Constitutions provide that laws and regulations must give fair notice of conduct that is forbidden or required.³⁸ The SED’s overly broad application of the statutes and regulations at issue fails this standard. As an initial matter, § 451 requires adequate “service, instrumentalities,

³⁶ OII at 8.

³⁷ Vague laws may trap the innocent by not providing a fair warning and raise the “dangers of arbitrary and discriminatory application.” *Grayned v. City of Rockford*, 408 U.S. 104, 108-09 (1972).

³⁸ U.S. Const. amend. XIV, § 1; Cal. Const., art. 1 § 7; *Kolender v. Lawson*, 461 U. S. 352, 357 (1983); *see also, e.g., Fox Television Stations*, 132 S. Ct. at 2317 (due process requires invalidation of statutes that “fail[] to provide a person of ordinary intelligence fair notice of what is prohibited, or [are] so standardless that [they] authorize[] or encourage[] seriously discriminatory enforcement”) (quoting *United States v. Williams*, 553 U.S. 285, 304 (2008)); *People v. Heitzman*, 9 Cal. 4th 189, 199 (1994); *People v. Mirmirani*, 30 Cal. 3d 375, 382 (1981) (“[A] statute which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application, violates the first essential of due process of law.” Such also is the law of the State of California.”) (internal citations omitted).

equipment, and facilities” to “promote” safety and other considerations. There is no mention of “records,” “maps,” or “recordkeeping,” words the Legislature knew how to use in the Public Utilities Code.³⁹ To apply § 451 to recordkeeping “deficiencies” would not only go beyond the text of § 451, it would impose on PG&E recordkeeping duties of completely unknown scope, to be penalized entirely in hindsight. In short, § 451 provides no guidance to PG&E and other regulated entities on what recordkeeping conduct will result in liability, especially in light of the tens of millions of records PG&E must keep. Similarly, the SED Reports seemingly insert into the federal pipeline safety regulations a requirement that pipeline operators maintain perfectly accurate records. Accurate records are a foundational element of our safety program—and, in fact, PG&E continuously works for improved and more accurate records—but there is no legal requirement in the federal pipeline safety regulations that records be perfect. The Department of Transportation could have included explicit accuracy requirements in the pipeline safety regulations, but it chose not to. The SED’s attempt to extend the reach of these regulations raises constitutional due process concerns.

As this Report makes clear, PG&E is committed to transparency in working with the Commission to continuously improve our gas distribution recordkeeping and our safety programs. However, for the reasons discussed above, PG&E does not believe that the factual allegations made in the SED Reports are sufficient to establish violations of law.⁴⁰

³⁹ See *e.g.*, in the same Article 1, “Rates,” Cal. Pub. Util. Code § 463, which disallows for ratemaking purposes expenses incurred for construction or operation of a utility’s plant that were not kept with “records” or “recordkeeping” sufficient for the Commission to evaluate the reasonableness and prudence of the expenses.

⁴⁰ Additional legal arguments and objections may arise as more facts become known. PG&E reserves the right to assert such arguments at the appropriate time in these proceedings.

IV. WITNESSES

PG&E identifies the following witnesses to the responses and information set forth in this Report. Sections of the Report are specified in connection with each witness.

Witness	Jim Howe
Title	Senior Director – Gas Regulatory Strategy
Sections of Report	I., II., II.A.

Witness	Kevin Knapp
Title	Vice-President – Gas T&D Operations
Sections of Report	II.B.

Witness	Sumeet Singh
Title	Vice President – Asset and Risk Management
Sections of Report	II.C. through II.D.(6), inclusive

V. CONCLUSION

PG&E and the Commission share the same objectives—to reduce and minimize the risk of incidents on PG&E’s gas distribution system, including the types of incidents referenced in the OII. PG&E has made investments in new infrastructure, protocols, and practices to enhance its gas distribution recordkeeping and, thus, safety overall. It looks forward to working cooperatively with the Commission to identify and consider further opportunities to improve its recordkeeping and other practices so as to better serve the public and ensure the safety of its employees, contractors, and the communities it serves.

Respectfully submitted,

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Dated: December 22, 2014

APPENDIX A

PACIFIC GAS AND ELECTRIC COMPANY'S INITIAL REPORT IN RESPONSE TO OII

PACIFIC GAS AND ELECTRIC COMPANY
INITIAL REPORT IN RESPONSE TO OII
APPENDIX A

Incident	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
CASTRO VALLEY September 17, 2010	The mapping error was caused by incorrect field documentation from the historical gas service records.	PG&E updated the mapping records.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues.
		In June 2013, PG&E published Utility Procedure TD-9500P-14, which expands on and clarifies PG&E's procedures for initiating and processing new Gas Service Records ("GSRs") in order to produce timely updates to plat maps. Since TD-9500P-14 was published, a GSR is required each time a gas service pipe is installed, altered, deactivated or replaced going forward.
		In October 2013, PG&E published a Damage Prevention Handbook, TD-5811M, which highlights the proper procedures for locating and marking gas facilities by using step-by-step instructions, supportive job aids, and visual aids. A system-wide rollout to field personnel was completed at the end of 2013 with continuous improvements as evidenced in Revision 1, which was published in March 2014.
Incident	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
MORGAN HILL June 21, 2012	Incomplete documentation was created when the steel gas service was cut back in the 1960s. The update was reflected in the "Remarks" section of the GSR but the plat map was not updated to reflect the service as a stub.	PG&E updated the mapping records.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues.
		In October 2012, PG&E provided a refresher "tailboard" briefing with locate-and-mark employees regarding PG&E's Utility Procedure TD-4412P-03, which provides for further action steps if a gas line cannot be located with field instruments.

		In June 2013, PG&E published Utility Procedure TD-9500P-14, which expands on and clarifies PG&E's procedures for initiating and processing new GSRs in order to produce timely updates to plat maps. Since TD-9500P-14 was published, a GSR is required each time a gas service pipe is installed, altered, deactivated or replaced going forward.
		In October 2013, PG&E published a Damage Prevention Handbook, TD-5811M, which highlights the proper procedures for locating and marking gas facilities by using step-by-step instructions, supportive job aids, and visual aids. A system-wide rollout to field personnel was completed at the end of 2013 with continuous improvements as evidenced in Revision 1, which was published in March 2014.
Incident	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
MILPITAS October 10, 2012	The plat map showed the valve position as "open"; valve was "closed" at the time of event, resulting in inaccurate output from the planning model.	Valve has been left in the correct position (i.e., open) since the incident occurred.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues.
		After the incident, PG&E held briefings with relevant staff to discuss lessons learned and processes for validating valve positions and monitoring pressure gauges.
		In February 2014, PG&E published Work Procedure TD-4441P-01 "Planned Work Clearance for Facilities Operating at and below 60 psig MAOP." Per TD-4441P-01, clearance supervisors and gas clearance executors are required to undergo training before performing the tasks described therein. The instructor-led course specifies that "gauges must be monitored for the entirety of the clearance with continuous monitoring." Rollout of the procedure throughout the divisions, which includes training, was completed by November 2014.
		Accompanying Work Procedure TD-4441P-01, PG&E published TD-4441P-01-JA01 through TD-4441P-01-JA08, "Responsibilities Job Aids for Planned Work Clearance for Facilities Operating at and below 60 psig MAOP." These job aids outline the process, including the communication and recording of pressure gauge readings.
		In September 2014, PG&E published Utility Standard TD-4441S "Gas Clearances" which provides the requirements for clearances on PG&E transmission and distribution natural gas facilities, including "Verify the positioning of all valves against the clearance before commencing work OR have a qualified delegate do so."

Incident	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
MILPITAS March 4, 2013	Incomplete documentation was created during a gas construction job in 1994. An Electronic Test Station was not included in the job package delivered to mapping to update the existing plat map for the area.	PG&E updated the mapping records.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues.
		In October 2013, PG&E published a Damage Prevention Handbook, TD-5811M, which highlights the proper procedures for locating and marking gas facilities by using step-by-step instructions, supportive job aids, and visual aids. A system-wide rollout to field personnel was completed at the end of 2013 with continuous improvements as evidenced in Revision 1, which was published in March 2014.
		In December 2014, PG&E published Gas Standard TD-4461S, "Gas As-Built Packages," which details the requirements for creating an as-built package throughout the construction process.
	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
MOUNTAIN VIEW July 30, 2013	PG&E's records had not been updated to show the 1" plastic service inserted inside the steel sleeve. PG&E was unable to locate the records for the plastic insert job, which PG&E believes occurred prior to 1980.	PG&E updated the mapping records.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues.
Incident	Recordkeeping Issue(s)	Corrective Actions PG&E Has Taken to Address Recordkeeping Issue(s)*
CARMEL-BY-THE-SEA March 3, 2014	PG&E's records had not been updated to show the insertion of plastic lines in the distribution main and service line to the affected property.	PG&E updated the mapping records.
		PG&E conducted an investigation of the incident, including a search of its existing records in an effort to determine the reason for the recordkeeping issues. PG&E also retained a third-party firm, Exponent, to conduct a Root Cause Analysis of the incident, and develop recommended corrective actions.

		• In March 2014, PG&E implemented the Gas Carrier Pipe Checklist (“Checklist”), which requires field personnel to verify that steel pipe has not been inserted with plastic prior to welding or tapping. The Checklist prescribes a series of steps to ensure that all feasible measures are taken to confirm that unseen plastic inserts are not present prior to any work being performed. PG&E communicated to all gas operations personnel performing work on distribution pipe that could be inserted with plastic the need to follow the Checklist.
		• PG&E has approved a new mechanical fitting to detect inserted plastic in steel pipes and also initiated a project with the Gas Technology Institute, a major industry research and development association, to develop advanced technologies to detect inserted plastic in steel pipes.

*** As noted in PG&E’s Initial Report, the enhancements to PG&E’s infrastructure, protocols, and practices explained in the Report will serve to minimize the risk of future events similar to these incidents. The corrective actions listed in this Appendix are those that relate most directly to the incidents, whether or not those enhancements were initiated specifically in response to the incidents in question. These corrective actions do not include all the measures PG&E has implemented and described in the Report to enhance the accuracy, accessibility and controls of its gas distribution records.**