

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



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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.

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

**OPENING BRIEF  
OF PACIFIC GAS AND ELECTRIC COMPANY**

ALEJANDRO VALLEJO  
ELIZABETH COLLIER  
Law Department  
Pacific Gas and Electric Company  
77 Beale Street  
San Francisco, CA 94105  
Telephone: (415) 973-1611  
Facsimile: (415) 973-0516  
Email: axvu@pge.com  
Email: eacp@pge.com

MARIE L. FIALA  
JOSHUA HILL  
Sidley Austin LLP  
555 California Street  
San Francisco, California 94104  
Telephone: (415) 772-1200  
Facsimile: (415) 772-2400  
Email: mfiala@sidley.com  
Email: jhill@sidley.com

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

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## I. Introduction and Summary of Argument

The California Public Utilities Commission (Commission) issued the Order Instituting Investigation and Order to Show Cause (OII)<sup>1</sup> in this matter to investigate whether PG&E violated any applicable laws, regulations, or rules by its “recordkeeping policies and practices with respect to maintaining safe operation of its gas distribution system.”<sup>2</sup> PG&E agrees that this is an important question, and appreciates the opportunity provided by this proceeding to respond to the concerns raised in the OII and explain the initiatives it has undertaken to improve its recordkeeping and enhance the safety of its operations. PG&E acknowledges that it does not have perfect records—indeed, it has been established in this proceeding that no pipeline operator does.<sup>3</sup> However, the evidence, which is largely undisputed, establishes that the Company’s distribution system safety performance, as measured by a key metric reported by the Pipeline and Hazardous Materials Safety Administration (PHMSA), places it near the top quartile nationally,<sup>4</sup> and that PG&E has worked continuously to identify and implement robust measures to further reduce the risk resulting from imperfect records. These conclusions are confirmed by SED’s experts, P Wood Associates (PWA),<sup>5</sup> and corroborated by independent third-party assessments that validate PG&E’s success in implementing innovative and best asset and safety management practices,<sup>6</sup> including numerous measures to enhance the accuracy and accessibility of its gas distribution records.

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<sup>1</sup> Order Instituting Investigation and Order to Show Cause, I. 14-11-008 (Nov. 20, 2014) (OII).

<sup>2</sup> Assigned Commissioner’s Scoping Memo and Ruling, I. 14-11-008 (Apr. 10, 2015) (Scoping Memo) at 3; *see also* OII at 1.

<sup>3</sup> *See infra* p. 39.

<sup>4</sup> *See infra* pp. 13-14.

<sup>5</sup> *See infra* pp. 17-30, Appendix A.

<sup>6</sup> *See infra* pp. 28-29.

PG&E's Opening Brief is organized as follows:

### **Safety Performance**

The core issue in this proceeding is whether alleged recordkeeping violations prevent PG&E from operating its gas distribution system safely.<sup>7</sup> After a thorough investigation and extensive discovery,<sup>8</sup> SED presented evidence regarding 19 incidents that occurred over a six-year period in an attempt to establish specific recordkeeping violations. PG&E acknowledges the seriousness of those incidents and regrets the resulting property damage and inconvenience to its customers and the public. Indeed, PG&E paid \$10.85 million in penalties resulting from the incident that occurred in Carmel.<sup>9</sup> The purpose of PG&E's investments in new infrastructure and technologies and adoption of industry leading practices has been to minimize to the largest extent possible the risk that similar incidents might occur in the future.

However, PWA agrees that SED's small sample of 19 incidents does not support any general conclusions about the quality of PG&E's recordkeeping or distribution system safety overall.<sup>10</sup> Objective safety measures demonstrate that PG&E operates its gas distribution system safely. PG&E successfully locates and marks 99.98% of the more than a half million requests it receives in a typical year.<sup>11</sup> And, an analysis of excavation damage metrics reported by PHMSA show that PG&E has the lowest rate of excavation damage per 1,000 tickets in California and is between the first and second performance quartiles compared to the averages for operators in

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<sup>7</sup> OII at 1; Scoping Memo at 3.

<sup>8</sup> See *infra* p. 7 (discussing SED's investigation).

<sup>9</sup> Resolution ALJ-323, *Resolves the Appeal of Pacific Gas and Electric Company from Citation ALJ-274 2014-11-001 Issued by the Safety and Enforcement Division* (Dec. 8, 2015).

<sup>10</sup> 1/19/16 Tr. at 81:6 to 82:14 (SED/PWA).

<sup>11</sup> 1/20/16 Tr. at 329:2-10 (PG&E/Higgins) (explaining that PG&E's facilities suffer no damage in connection with "99.98 percent" of Underground Service Alert (USA) tickets); Ex. 4 at 3-40:21-23 (PG&E Reply Testimony, Higgins) ("Between January and September 2015, 548,717 USA tickets were received, with a total of 117 PG&E at-fault dig-ins, or approximately 0.02 percent of jobs."). In fact, between January 2013 and September 2015, PG&E consistently correctly marked 99.95% to 100% of the tens of thousands of USA requests it received each month. *Id.* at 7-13 to 7-14, 7-Ex.2 (PG&E Reply Testimony, Hurioux).

each of the other states;<sup>12</sup> this is a noteworthy fact given that PHMSA assesses California as lacking an effective excavation damage enforcement program.<sup>13</sup> SED does not dispute this evidence regarding PG&E’s safety performance.<sup>14</sup>

### **Continuous Improvement in Recordkeeping and Operational Safety**

PG&E has embarked upon numerous improvement initiatives to enhance the accuracy and accessibility of its gas distribution records, backstop these records with in-the-field practices to add layers of protection, and implement other complementary measures to enhance the safety of its gas distribution system. These actions will minimize to the greatest extent possible the risk that such incidents might occur again. SED agrees with PG&E that these measures meet—and in many cases exceed—industry best practices. According to PWA, nine of the 24 measures PG&E has adopted are industry “best practices” that have been shown to “produce superior safety results” beyond those required by the safety regulations.<sup>15</sup> An additional eight of these measures, according to PWA, are “innovative practices,” extending a “step beyond” industry best practices.<sup>16</sup>

### **Standard of Care**

A central point of disagreement between the parties concerns the appropriate standard of care related to a distribution pipeline operator’s recordkeeping. PG&E’s experts, Richard Huriaux, a longtime senior PHMSA regulator, and Bruce Paskett, with decades of experience as a gas pipeline operator and in industry standard-setting organizations, described a standard of care that is firmly grounded in the regulations and practicality. They recognize that pipeline

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<sup>12</sup> Ex. 4 at 8-23 tbl.6 (PG&E Reply Testimony, Paskett); Ex. 10 at 8-22, 8-22 tbl.5 (PG&E Errata to Reply Testimony, Paskett).

<sup>13</sup> Ex. 4 at 3-20:6-8 (PG&E Reply Testimony, Higgins); *id.* at 7-17 (PG&E Reply Testimony, Huriaux); *id.* at 8-20 to 8-21 (PG&E Reply Testimony, Paskett).

<sup>14</sup> 1/19/16 Tr. at 51:22 to 54:15 (SED/PWA) (noting that PWA has not done an analysis of the publicly available PHMSA data set forth in Mr. Paskett’s report, but that PWA has no reason to doubt the data or conclusion presented by Mr. Paskett).

<sup>15</sup> *Id.* at 30:4-14 (SED/PWA); Ex. 1 at 59-67 tbl.9 (PWA Report).

<sup>16</sup> 1/19/16 Tr. at 31:13 to 33:12 (SED/PWA); Ex. 1 at 59-67 tbl.9 (PWA Report).

operators do not have perfect records,<sup>17</sup> and that the pipeline safety regulations do not require operators to meet a standard of perfection.<sup>18</sup> On the contrary, the regulations requiring pipeline operators to establish a Distribution Integrity Management Program (DIMP)<sup>19</sup> expressly recognize that operators may have missing, inaccurate, or incomplete records and require operators to address this issue by updating and correcting their records in the normal course of operations.<sup>20</sup> The standard that PG&E proposes accordingly requires an operator’s reasonable compliance with the regulations and continuous improvement in its maps and records over time, based on the best available information.<sup>21</sup> This standard is consistent with the federal regulations<sup>22</sup> and provides specific guidelines for implementing the broad safety mandate the Commission has held is embodied in California Public Utilities Code section 451.<sup>23</sup>

PWA, in contrast, has proposed a standard of care that would require PG&E to prevent all “impactful events” related to recordkeeping errors and to generate and maintain records with “zero defects” after 2015.<sup>24</sup> While this is a meritorious ultimate goal, it is not a standard of care by which performance should be measured. PWA concedes that this standard is not defined anywhere in the regulations and has not been adopted by any regulator.<sup>25</sup> Furthermore, despite

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<sup>17</sup> Ex. 4 at 7-8 (PG&E Reply Testimony, Huriaux); *id.* at 8-14 (PG&E Reply Testimony, Paskett).

<sup>18</sup> *Id.* at 7-5 to 7-6 (PG&E Reply Testimony, Huriaux); *id.* at 8-14 to 8-15 (PG&E Reply Testimony, Paskett).

<sup>19</sup> 49 C.F.R. §§ 192.1001-192.1015.

<sup>20</sup> Ex. 4 at 8-11 (PG&E Reply Testimony, Paskett); Ex. 9, Attachment E007 at E007.014, E007.025 (74 Fed. Reg. 63,906 (Dec. 4, 2009)).

<sup>21</sup> Ex. 4 at 7-5 (PG&E Reply Testimony, Huriaux); *id.* at 8-15 (PG&E Reply Testimony, Paskett).

<sup>22</sup> *Id.* at 7-5 to 7-6 (PG&E Reply Testimony, Huriaux); *id.* at 8-14 to 8-15 (PG&E Reply Testimony, Paskett).

<sup>23</sup> Cal. Pub. Util. Code § 451; *Investigation of Pac. Gas & Elec. Co.*, D. 15-04-021, 2015 Cal. PUC LEXIS 228, at \*60-61.

<sup>24</sup> 1/19/16 Tr. at 95:26 to 96:25 (SED/PWA) (asserting that “PG&E’s maps and records updates or new entries after [the] deployment [of GD GIS] should have zero defects”); Ex. 2 at 4, 9 (PWA Rebuttal).

<sup>25</sup> 1/19/16 Tr. at 109:13-19 (SED/PWA); Ex. 2 at 61 (PWA Rebuttal) (“PWA agrees that the Standard of Care for the accuracy and completeness of distribution pipeline records is not explicitly defined in state or federal pipeline safety regulations. However, we have used the pipeline safety regulations to infer a Standard of Care.”).

acknowledging that “absolute safety” can only be achieved at “infinite cost,”<sup>26</sup> PWA’s proposed standard fails to account for the fact that some level of risk will always be associated with operating a natural gas system.<sup>27</sup> Indeed, PWA “seriously doubts” that any operator in the country is in compliance with it.<sup>28</sup> PWA’s proposed standard of care is neither attainable nor sound as a matter of regulatory policy.

### **Incidents and Alleged Violations**

PG&E respectfully submits that SED has not met its burden of proving the specific violations it has alleged. Six of the incidents, and a great many of the alleged violations, have nothing to do with recordkeeping issues.<sup>29</sup> As such, they are outside the scope of this proceeding,<sup>30</sup> and should not be considered.<sup>31</sup> With respect to the remaining incidents and violations, PG&E explains, first, that SED did not meet the burden of proof required to find that PG&E’s recordkeeping practices fail to comply with any specific statute or regulation,<sup>32</sup> and, second, that the specific incidents do not give rise to any recordkeeping violations.<sup>33</sup>

### **Mountain View and Carmel Incidents**

SED understandably has focused in this proceeding on the events surrounding the incidents in Mountain View and Carmel (including the missing De Anza Division leak repair records). PG&E acknowledges that inaccuracies in its records contributed to these incidents and that they raise appropriate questions and concerns. This section of the Opening Brief explains how PG&E’s actions related to these incidents were appropriate and how its adoption of various backstop measures have increased the safety of its system since the incidents occurred.<sup>34</sup>

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<sup>26</sup> Ex. 2 at 32 tbl.2 (PWA Rebuttal).

<sup>27</sup> Ex. 4 at 1-15:11-21 (PG&E Reply Testimony, Howe).

<sup>28</sup> 1/19/16 Tr. at 44:5-15 (SED/PWA).

<sup>29</sup> See *infra* pp. 41-42, Appendices B-C.

<sup>30</sup> OII at 1; Scoping Memo at 3.

<sup>31</sup> See *infra* pp. 41-42 (discussing incidents outside the scope of this proceeding); Appendix B at pp. B-2 to B-7.

<sup>32</sup> See *infra* pp. 8-9, 42-48.

<sup>33</sup> See *infra* Appendix B at pp. B-8 to B-20.

<sup>34</sup> See *infra* pp. 48-56.

## **MAOP**

Finally, PG&E responds to SED's allegation that PG&E's method for setting the maximum allowable operating pressure (MAOP) on a number of its distribution systems is inconsistent with the applicable federal regulation<sup>35</sup> and that PG&E should therefore be found in violation for using that methodology. PG&E explains that its longstanding practice is consistent with regulatory guidance, has been reviewed over many years and recently approved by SED, and poses no safety risk.<sup>36</sup>

\* \* \*

PG&E is continuously considering opportunities to improve its recordkeeping, as well as other complementary measures that will enhance the safety of its gas distribution system. It welcomes the Commission's review of its distribution recordkeeping procedures and practices as part of that process. PG&E has already agreed to act on many of SED's recommendations for recordkeeping improvements, and continues to look for opportunities to improve further, consistent with its vision to provide the safest and most reliable gas utility service in the United States.

## **II. Procedural Background**

Citing six incidents that occurred in the last six years, on November 20, 2014, the Commission instituted a formal investigation to determine "whether PG&E's recordkeeping practices for its gas distribution system have been unsafe and in violation of the law."<sup>37</sup> On December 22, 2014, PG&E submitted an Initial Report as directed by the OII.

Following a Prehearing Conference held on March 9, 2015, the Assigned Commissioner issued a Scoping Memo and Ruling on April 10, 2015 defining the scope of this proceeding, which is whether PG&E violated any laws or regulations "by its recordkeeping policies and practices with respect to maintaining safe operation of its gas distribution system."<sup>38</sup> PG&E

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<sup>35</sup> 49 C.F.R. § 192.619(c).

<sup>36</sup> See *infra* pp. 56-61.

<sup>37</sup> OII at 1.

<sup>38</sup> Scoping Memo at 3.

submitted its Final Statement of Facts on May 8, 2015, setting forth the facts to which PG&E stipulates regarding the six incidents identified in the OII.<sup>39</sup>

Beginning in March 2014, SED conducted vigorous discovery, propounding over 100 data requests and written interrogatories under oath directed to PG&E's senior executives.<sup>40</sup> PG&E produced tens of thousands of pages of documents in response to these data requests.<sup>41</sup> SED also requested, and PG&E made, two presentations to SED and PWA by knowledgeable PG&E managers on a number of records-related topics.<sup>42</sup> PWA visited the locations where the six incidents identified in the OII occurred.<sup>43</sup> PG&E also made six PG&E field employees available for interviews by SED and PWA on a range of records-related and operational procedures and processes.<sup>44</sup>

SED submitted its Supplemental Testimony on September 30, 2015, consisting of a report by PWA,<sup>45</sup> in which PWA identified alleged violations in connection with 19 incidents, including the six incidents identified in the OII. PWA also provided its assessment of 24 corrective actions PG&E has adopted to improve its recordkeeping and operational safety. PWA concluded that nine of these measures are industry "best practices" that have been shown to "produce superior safety results" beyond those required by the "safety regulations,"<sup>46</sup> while an additional eight of these measures extend a "step beyond" industry best practices and are considered "innovative practices."<sup>47</sup>

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<sup>39</sup> Ex. 6, Attachment W040 (PG&E's Final Statement of Facts, I. 14-11-008 (Apr. 10, 2015) (PG&E's Final Statement of Facts)).

<sup>40</sup> Ex. 4 at 1-2:25-30 (PG&E Reply Testimony, Howe); Ex. 1 at 6 (PWA Report).

<sup>41</sup> Ex. 4 at 1-2:25-30 (PG&E Reply Testimony, Howe).

<sup>42</sup> Ex. 1 at 6 (PWA Report).

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

<sup>45</sup> Ex. 1 (PWA Report). In addition to the six incidents identified in the OII, the PWA Report also discusses 13 other incidents.

<sup>46</sup> 1/19/16 Tr. at 30:4-14 (SED/PWA).

<sup>47</sup> *Id.* at 31:13 to 33:12 (SED/PWA); Ex. 1 at 59-67 tbl.9 (PWA Report); *see also infra* pp. 17-30 (discussing measures PG&E has implemented to improve its gas distribution recordkeeping and promote safety); Appendix A.

On October 14, 2015, the City of Carmel-by-the Sea (Carmel) and The Utility Reform Network (TURN) submitted their testimony.<sup>48</sup>

On November 12, 2015, PG&E submitted its Reply Testimony, which includes testimony from five PG&E fact witnesses and two experts on the following topics:<sup>49</sup>

Chapter	Witness	Topic
1	Jim Howe	Introduction and Policy
2	Sumeet Singh	Asset, Records, and Data Management
3	John Higgins	Field Operations
4	Roland Trevino	Mapping
5	Sumeet Singh	Operational Improvements, Controls, and MAOP
6	Raymond Thierry	DIMP and Asset Data
7	Richard Huriaux	Expert Report on Standard of Care and Safety
8	Bruce Paskett	Expert Report on Standard of Care and Safety

On December 18, 2015, SED submitted its Rebuttal Testimony, consisting of a report prepared by PWA responding to PG&E’s Reply Testimony. Carmel and TURN did not submit rebuttal testimony.

Evidentiary hearings in this proceeding were held on January 19, 20, and 21, before Administrative Law Judge Maribeth A. Bushey.

### III. Burden of Proof

SED has the burden of proof to establish that PG&E violated pipeline safety regulations related to recordkeeping and that those violations led to the operation of an unsafe gas distribution system.<sup>50</sup> To prove that PG&E violated any of the regulations cited in its testimony,

<sup>48</sup> Ex. 3 (TURN Testimony); Ex. 43 (Carmel Testimony, Calhoun); Ex. 44 (Carmel Testimony, Burnett).

<sup>49</sup> Ex. 4 (PG&E Reply Testimony).

<sup>50</sup> *Investigation of Qwest Commc’ns Corp.*, D. 03-01-087, 2003 Cal. PUC LEXIS 67, at \*12-13 n.5 (“The Commission requires that violations of the Public Utilities Code or other Commission requirements be proved by preponderance of the evidence.”) (citing *Investigation of Commc’ns Telesystems Int’l*, D. 97-10-063, 1997 Cal. PUC LEXIS 912, at \*4 n.3); *Investigation of TracFone Wireless, Inc.*, D. 15-05-032, 2014 Cal. PUC LEXIS 700, at \*24.

SED must meet the preponderance of the evidence standard “as to each fact the existence or nonexistence of which is essential to the claim for relief . . . that [it] is asserting.”<sup>51</sup> SED must proffer sufficient evidence such that, “when weighed with that [evidence] opposed to it, . . . [it has] the more convincing force and the greater probability of truth.”<sup>52</sup> The Commission has explained that, “[i]f the evidence is so evenly balanced that you are unable to say that the evidence on either side of an issue preponderates, your finding on that issue must be against the party who had the burden of proving it.”<sup>53</sup> In addition, Commission decisions make clear that, in order to find a utility in violation of a given regulation under this standard, such finding must be based on a comprehensive evidentiary record showing with specificity the utility’s breach of the provision.<sup>54</sup>

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<sup>51</sup> *TracFone Wireless, Inc.*, 2014 Cal. PUC LEXIS 700, at \*25; *Investigation of Commc’ns Telesystems Int’l*, D. 97-05-089, 1997 Cal. PUC LEXIS 447, at \*35 (“It is well settled that the standard of proof in Commission investigation proceedings is by a preponderance of the evidence.”).

<sup>52</sup> *Application of S. Cal. Edison Co. & San Diego Gas & Elec. Co. for Auth. to Merge*, D. 91-05-028, 1991 Cal. PUC LEXIS 253, at \*17.

<sup>53</sup> *Id.*

<sup>54</sup> *See, e.g., Investigation of Pac. Bell Wireless*, D. 04-09-062, 2004 Cal. PUC LEXIS 453, at \*19-20 (Commission applied preponderance of evidence standard and found Cingular’s policy of collecting early termination fees and other penalties from customers violative of both Cal. Pub. Util. Code § 451 and prior Commission decision; Commission based its finding on “voluminous record,” including evidence of “Cingular’s intensive marketing . . . , its limited sales disclosures, and the content of its advertising” as well as “seven different data sources, which represent . . . customer dissatisfaction with Cingular”); *Greenlining Inst., Latino Issues Forum v. Pac. Bell*, D. 01-04-037, 2001 Cal. PUC LEXIS 384, at \*34 (finding that Pacific Bell did not violate Calif. Pub. Util. Code § 2896, a deceptive marketing practices regulation, due to complainant’s failure to meet preponderance of evidence standard; specifically, “defendants’ evidence on training and monitoring of its customer service representatives establish[ed] a business practice which the Evidence Code permit[ted] [the Commission] to infer is followed routinely, barring proof to the contrary”; because business practice at issue was in compliance with § 2896’s requirements and proof that Pacific Bell had diverged from its official policy was absent, complainant did not meet preponderance of evidence standard).

#### IV. PG&E's Gas Distribution Safety Record

##### A. The Evidence Establishes That PG&E Operates Its Gas Distribution System Safely.

The focus of this proceeding is whether alleged recordkeeping violations prevent PG&E from operating its gas distribution system safely.<sup>55</sup> PG&E's undisputed overall excavation damage performance record—a key measure of gas distribution system safety<sup>56</sup>—speaks for itself. PG&E correctly locates and marks 99.98% of the more than half-million locate and mark requests it receives in a typical year.<sup>57</sup> Between 2010 and 2014, PHMSA's data places PG&E's performance on this critical metric as consistently and significantly better than the average in California,<sup>58</sup> and near the top quartile compared to the operator averages in each of the 50 states,<sup>59</sup> despite the fact that California is one of few states that does not have effective excavation damage laws or enforcement of those laws.

PG&E takes any incident that occurs on its system, especially an incident such as the one in Carmel, very seriously, and reducing the risk of harm to people or property is PG&E's highest priority. Although incidents are never acceptable, some degree of risk will always be present in transporting natural gas under pressure<sup>60</sup>—as PWA acknowledges, absolute safety could only be achieved at an infinite cost.<sup>61</sup> However, SED focused only on 19 isolated incidents that occurred on 42,000 miles of distribution mains and 3.3 million services<sup>62</sup> over a six-year period. SED's experts admit that no general conclusions about the safety of PG&E's gas distribution system or the quality of its recordkeeping as a whole can be drawn from such a small sampling of PG&E's

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<sup>55</sup> OII at 1 (“This investigation will review and determine whether PG&E's recordkeeping practices for its gas distribution system *have been unsafe* and in violation of the law.”) (emphasis added).

<sup>56</sup> See *infra* pp. 11-12.

<sup>57</sup> Ex. 4 at 3-40:21-23 (PG&E Reply Testimony, Higgins); 1/20/16 Tr. at 329:2-10 (PG&E/Higgins).

<sup>58</sup> Ex. 10 at 8-22 (PG&E Errata to Reply Testimony, Paskett).

<sup>59</sup> Ex. 4 at 8-23 tbl.6 (PG&E Reply Testimony, Paskett).

<sup>60</sup> *Id.* at 1-15:11-21 (PG&E Reply Testimony, Howe).

<sup>61</sup> Ex. 2 at 32 tbl.2 (PWA Rebuttal).

<sup>62</sup> Ex. 4 at 3-1:14-17 (PG&E Reply Testimony, Higgins); *id.* at 6-3:9-13 (PG&E Reply Testimony, Thierry).

operations.<sup>63</sup> PG&E's performance, in contrast, demonstrates that its gas distribution system is safe, and that PG&E continues to reduce risk on its system.

**1. SED and PG&E Agree That Excavation Damage Is a Key Measure of a Gas Distribution System's Safety and the Quality of Its Records.**

Excavation damage, also known as a "dig-in," is damage to underground facilities due to excavation work.<sup>64</sup> It has long been recognized as the most significant threat to distribution pipeline safety.<sup>65</sup> In the 2004-2009 timeframe, PHMSA conducted a multi-phased effort to address safety risks to gas distribution pipeline systems. As part of the effort to study safety issues, PHMSA established working groups, which included federal and state regulators and industry representatives from across the country, including PG&E's expert, Bruce Paskett, and two of PWA's expert witnesses in this proceeding.<sup>66</sup> In 2005, the working groups published a comprehensive report, titled *Integrity Management for Gas Distribution, Report of Phase 1 Investigations* (Phase 1 Report), detailing their findings.<sup>67</sup> A foundational conclusion of the Phase 1 Report was that "excavation damage is the single most significant cause of incidents on distribution pipeline systems" and, therefore, preventing excavation damage "presents the most significant opportunity for distribution pipeline safety improvements."<sup>68</sup>

PG&E and SED further agree that an operator's ability to avoid excavation damage is a key measure not just of its safety generally, but also of the accuracy and completeness of its

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<sup>63</sup> 1/19/16 Tr. at 81:6 to 82:14 (SED/PWA).

<sup>64</sup> Ex. 4 at 8-4 to 8-5 (PG&E Reply Testimony, Paskett).

<sup>65</sup> *Id.* at 8-16 (PG&E Reply Testimony, Paskett).

<sup>66</sup> 1/19/16 Tr. at 45:6-17 (SED/PWA). Two of SED's experts, Paul Wood and John Gawronski, were members of the working groups. *Id.*

<sup>67</sup> Ex. 13 at E019.010 (Pipeline & Hazardous Materials Safety Admin., et al., *Integrity Management for Gas Distribution Report of Phase 1 Investigations* (Dec. 2005) (PHMSA Phase 1 Report). The working groups, with PHMSA's participation, worked to collect and analyze information and to reach findings and conclusions to inform future work by PHMSA on the implementation of gas distribution integrity management principles. *Id.* at E019.010-.011.

<sup>68</sup> *Id.* at E019.016, .038, .047 (PHMSA Phase 1 Report). Mr. Paskett was part of the working group that prepared this portion of the Phase 1 Report. *Id.*

maps and records.<sup>69</sup> When records are inaccurate, there is a greater risk of failing to properly locate and identify, and therefore a greater risk of damaging, buried underground facilities.

## **2. PG&E Correctly Locates and Marks 99.98% of the Hundreds of Thousands of USA Tickets It Receives Each Year.**

Like all gas distribution operators, PG&E closely tracks the frequency of excavation damage on its system and seeks to determine the cause whenever possible.<sup>70</sup> PG&E also tracks the number of dig-ins for which it is at fault because, for example, the locate and mark personnel responsible for marking the underground asset made a mistake or the PG&E crew did not follow proper excavation practices.<sup>71</sup>

The requests received by PG&E to locate and mark underground facilities in advance of planned excavation are known as Underground Service Alert or “USA” tickets.<sup>72</sup> Between 2010 and 2014, the rate of incidents per 1,000 USA tickets received by PG&E declined by about 25 percent.<sup>73</sup> For the first nine months of 2015, PG&E had received approximately 65,000 USA requests from third parties every month.<sup>74</sup> Out of the hundreds of thousands of tickets it responded to between January and September 2015, PG&E’s at-fault dig-in rate was approximately 0.02%.<sup>75</sup> In other words, PG&E accurately marked approximately 99.98% of the excavation requests it worked during that time period.<sup>76</sup> This 0.02% figure includes dig-ins that resulted from factors other than imperfect maps or records, such as changed field conditions, or

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<sup>69</sup> 1/19/16 Tr. at 49:22 to 50:8 (SED/PWA); Ex. 4 at 1-16:1 to 1-17:10 (PG&E Reply Testimony, Howe); *id.* at 8-4, 8-16 to 8-17 (PG&E Reply Testimony, Paskett).

<sup>70</sup> Ex. 4 at 1-15:22 to 1-17:10 (PG&E Reply Testimony, Howe).

<sup>71</sup> *Id.* at 1-16:13-20, 1-17 tbls.1 & 2 (PG&E Reply Testimony, Howe).

<sup>72</sup> *Id.* at 3-12 n.16 (PG&E Reply Testimony, Higgins); *id.* at 7-13 (PG&E Reply Testimony, Huriaux).

<sup>73</sup> *Id.* at 3-41:17-25 (PG&E Reply Testimony, Higgins).

<sup>74</sup> *Id.* at 7-13, 7-Ex.2 (PG&E Reply Testimony, Huriaux).

<sup>75</sup> 1/20/16 Tr. at 329:2-10 (PG&E/Higgins); Ex. 4 at 3-40:21-23 (PG&E Reply Testimony, Higgins).

<sup>76</sup> 1/20/16 Tr. at 329:2-10 (PG&E/Higgins) (explaining that PG&E’s facilities suffer no damage in connection with “99.98 percent” of USA tickets); Ex. 4 at 3-40:21-23 (PG&E Reply Testimony, Higgins) (“Between January and September 2015, 548,717 USA tickets were received, with a total of 117 PG&E at-fault dig-ins, or approximately 0.02 percent of jobs.”). In fact, between January 2013 and September 2015, PG&E consistently correctly marked 99.95%–100% of the tens of thousands of USA requests it received each month. *Id.* at 7-13 to 7-14, 7-Ex.2 (PG&E Reply Testimony, Huriaux).

locate and mark operational errors unrelated to records.<sup>77</sup> Accordingly, at-fault dig-ins due to incorrect maps and records constitute a fraction of 0.02% of total dig-ins.<sup>78</sup>

**3. PG&E’s Excavation Damage Performance Compares Favorably to Averages in California and Across the Nation.**

Since 2010, PHMSA has required gas distribution operators to submit an annual report providing metrics on their USA tickets and excavation damages.<sup>79</sup> Mr. Paskett’s analysis of the PHMSA data between 2010 and 2014, which PWA does not dispute,<sup>80</sup> demonstrates that PG&E’s excavation damage performance was consistently better than the average for operators in California.<sup>81</sup>

**Normalized Excavation Damages (Excavation Damages/1,000 Excavation Tickets) (2010-2014)**

	2010	2011	2012	2013	2014
PG&E	3.50	2.99	2.53	2.75	2.38
California	4.96	5.38	4.39	4.52	3.83

Mr. Paskett also compared PG&E’s performance to averages for operators in each of the 50 states, evaluated in light of the efficacy of each state’s damage prevention program. PHMSA has assessed California as one of only nine states that does not have an effective damage prevention program because, although California has civil penalties, it does not have an enforcement mechanism or a responsible oversight agency.<sup>82</sup> This fact has a dramatic impact on the frequency of excavation damage in the state. As the Phase 1 Report found, “states with comprehensive damage programs that include effective enforcement have a substantially lower

<sup>77</sup> 1/21/16 Tr. at 374:9-22 (PG&E/Thierry).

<sup>78</sup> *Id.* at 397:4-8 (PG&E/Thierry).

<sup>79</sup> Ex. 4 at 8-5 (PG&E Reply Testimony, Paskett).

<sup>80</sup> 1/19/16 Tr. at 51:22 to 54:15 (SED/PWA) (noting that PWA has not done an analysis of the publicly available PHMSA data set forth in Mr. Paskett’s report, but that PWA has no reason to doubt the data or conclusions presented by Mr. Paskett).

<sup>81</sup> Ex. 10 at 8-22 (PG&E Errata to Reply Testimony, Paskett). Normalized excavation damages are defined as excavation damages per 1,000 excavation tickets. *Id.*

<sup>82</sup> Ex. 4 at 8-21 (PG&E Reply Testimony, Paskett); *id.* at 3-20:6-8 (PG&E Reply Testimony, Higgins); *id.* at 7-17 (PG&E Reply Testimony, Huriaux); *id.* at 8-20 to 8-21 (PG&E Reply Testimony, Paskett).

probability of excavation damage to pipeline facilities than the states that do not.”<sup>83</sup> For example, the Phase 1 Report found that, in 2004, states with comprehensive damage prevention programs had a 26% lower damage rate than the other states,<sup>84</sup> and states with effective *enforcement* by state agencies have rates that are less than half those in states without effective enforcement programs.<sup>85</sup>

According to the PHMSA data, when compared to the average excavation damage rates in states with ineffective enforcement programs, such as California, PG&E is ranked No. 1, with the lowest normalized excavation damage rate.<sup>86</sup> Even when compared to the averages for operators in each of the 50 states, including many states with more effective enforcement regimes, PG&E ranks No. 13.<sup>87</sup> In other words, the PHMSA numbers put PG&E’s safety performance in this area near the top quartile for the nation even though PHMSA rates California’s damage prevention program as weak.

According to Mr. Huriaux, PG&E’s excavation damage metrics demonstrate “excellent performance by any standard.”<sup>88</sup> Mr. Paskett agrees.<sup>89</sup> Messrs. Huriaux and Paskett are highly qualified to opine about PG&E’s safety performance. Mr. Huriaux has been involved in gas and oil pipeline safety regulation for more than 40 years, including 13 years as the Director of Pipeline Regulations & Technical Standards and Director of Pipeline Technical Standards at PHMSA.<sup>90</sup> Mr. Paskett has more than 30 years of experience at a natural gas operator, during which he was responsible for ensuring compliance with applicable federal and state pipeline

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<sup>83</sup> Ex. 13 at E019.016 (PHMSA Phase 1 Report).

<sup>84</sup> *Id.* at E019.038-.039.

<sup>85</sup> *Id.* at E019.039.

<sup>86</sup> Ex. 4 at 8-5, 8-22 (PG&E Reply Testimony, Paskett); Ex. 10 at 8-23, 8-23 tbl.6 (PG&E Errata to Reply Testimony, Paskett).

<sup>87</sup> Ex. 4 at 8-22 (PG&E Reply Testimony, Paskett); Ex. 10 at 8-23, 8-23 tbl.6 (PG&E Errata to Reply Testimony, Paskett).

<sup>88</sup> Ex. 4 at 7-14 (PG&E Reply Testimony, Huriaux).

<sup>89</sup> *Id.* at 8-22 (PG&E Reply Testimony, Paskett); Ex. 10 at 8-23 (PG&E Errata to Reply Testimony, Paskett).

<sup>90</sup> Ex. 4 at 7-2 (PG&E Reply Testimony, Huriaux).

safety regulations and participated extensively in industry associations, including initiatives to improve gas pipeline safety.<sup>91</sup>

Both experts attribute PG&E's performance to the Company's aggressive and innovative excavation damage prevention program, which is consistent with best practices in the industry.<sup>92</sup> Mr. Huriaux further opines that strengthening the California excavation law would be more important to driving down dig-in rates than any other measure that could be taken.<sup>93</sup> PWA acknowledges that if California added enforcement authority to its excavation law, PG&E would "significantly improve" its performance.<sup>94</sup>

**4. PWA Concedes That Its Observations About 19 Incidents Do Not Provide a Basis for Drawing Any Conclusions About the State of PG&E's Records for the Entire Gas Distribution System.**

PWA does not dispute the statistics described above or the conclusions drawn by Messrs. Huriaux and Paskett regarding safety. Instead, it focuses on observations of the 19 incidents identified in its reports. These incidents occurred over a six-year period during which PG&E marked well over two million USA tickets.<sup>95</sup> Nineteen incidents out of more than two million tickets worked—or 0.001%—is a minute fraction, a fact that PWA acknowledges.<sup>96</sup> No reasonable conclusions can be drawn about PG&E's gas distribution system generally from such a small sample of observations. PWA agrees; it admits that it did not draw any conclusions about the quality of PG&E's recordkeeping practices, procedures, or safety by extrapolating from these 19 incidents to PG&E's system as a whole.<sup>97</sup> Nor could any legitimate conclusions about PG&E's system as a whole be based on such limited observations.

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<sup>91</sup> *Id.* at 8-1 (PG&E Reply Testimony, Paskett).

<sup>92</sup> *Id.* at 7-16 (PG&E Reply Testimony, Huriaux); *id.* at 8-21 (PG&E Reply Testimony, Paskett).

<sup>93</sup> *Id.* at 7-18 (PG&E Reply Testimony, Huriaux).

<sup>94</sup> Ex. 2 at 50 tbl.2 (PWA Rebuttal); *see also* 1/19/16 Tr. at 53:17-25 (SED/PWA).

<sup>95</sup> 1/19/16 Tr. at 77:9 to 80:19 (SED/PWA).

<sup>96</sup> *Id.* at 80:1-19 (SED/PWA).

<sup>97</sup> *Id.* at 81:6 to 82:14 (SED/PWA).

For all these reasons, PG&E respectfully submits that SED has failed to establish that PG&E operates an unsafe gas distribution system, the core question presented by the OII.

**B. PG&E Continues to Work to Improve the Safety of Its Gas Distribution System Operations.**

PG&E is committed to driving these numbers down even further. As its safety management systems continue to mature, PG&E continues to evaluate and improve its work processes to bolster the accuracy and accessibility of its records, provide employees and contractors with the information they need to work safely, and create tools to allow issues to be identified and addressed as they arise. Locate and mark personnel have access to a user-friendly Damage Prevention Handbook that contains all applicable, up-to-date work steps for locating and marking PG&E's gas and electric facilities.<sup>98</sup> They are also provided with mobile tablets that give them access to Gas Distribution Geographic Information System (GD GIS) data and electronic Gas Service Records (GSRs).<sup>99</sup> Mobile technology can be used to initiate mapping corrections.<sup>100</sup> It also allows users 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.<sup>101</sup> PG&E has revamped its locate and mark training program and requires locate and mark employees and contractors to hold specialized qualifications.<sup>102</sup>

PG&E also developed a Pre-Dig Verification Form requiring the work crew or contractor to verify that a records review and visual inspection of physical assets have been conducted

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<sup>98</sup> Ex. 4 at 3-12:11 to 3-13:2 (PG&E Reply Testimony, Higgins); *see also* Ex. 6, Attachment W023 (PG&E's Response to SED Data Request No. 9); *id.*, Attachment W024 (PG&E's Response to SED Data Request No. 32). The Handbook was rolled out systemwide at the end of 2013 and is periodically reviewed and revised to incorporate the latest updates. *Id.* PWA identifies the Handbook as an "innovative practice." Ex. 1 at 65-66 tbl.9 (PWA Report).

<sup>99</sup> Ex. 4 at 3-13:9-10 (PG&E Reply Testimony, Higgins). PWA describes PG&E's tablet program as an industry "best practice" and notes that "the technology and capabilities appear to support and enhance the L&M function effectively." Ex. 1 at 62 tbl.9 (PWA Report).

<sup>100</sup> Ex. 4 at 2-13:25-29 (PG&E Reply Testimony, Singh).

<sup>101</sup> *Id.* at 3-32:1-5 (PG&E Reply Testimony, Higgins). This is considered a "best practice" by PWA. Ex. 1 at 63 tbl.9 (PWA Report).

<sup>102</sup> Ex. 4 at 3-16:1-30 (PG&E Reply Testimony, Higgins).

before performing any excavation work.<sup>103</sup> PG&E executes targeted public awareness programs with the goal of reducing dig-ins by educating homeowners and contractors regarding safe excavation practices. PWA specifically recognizes PG&E’s Gold Shovel and Habitual Offender programs as “best practices,”<sup>104</sup> and PG&E is continually developing similar programs, such as the Dig-in Reduction Team,<sup>105</sup> to prevent dig-ins before they happen.

**V. PG&E Has Implemented Numerous Measures to Improve Its Gas Distribution Recordkeeping and Promote Safety.**

Before the Commission issued this OII, PG&E had commenced numerous initiatives to improve its gas distribution recordkeeping and mitigate the risks created by imperfect records. For ease of reference, PG&E has prepared the table attached as Appendix A, which summarizes more than 40 measures that PG&E has undertaken to improve the quality and management of its gas distribution records and promote safety. Over the course of this proceeding, PWA evaluated 24 of those PG&E measures and concluded that, within the gas industry, 17 are considered either “best practices” or “innovative practices.”<sup>106</sup> These terms have definitions grounded in PWA’s interpretation of what the regulations require from a gas utility. According to PWA, “best practices” are those that have been shown to “produce superior safety results” *beyond* the results required by the “safety regulations.”<sup>107</sup> And “innovative practices,” PWA explained, extend even a “step beyond” these “best practices.”<sup>108</sup> PWA’s agreement that PG&E’s corrective

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<sup>103</sup> *Id.* at 3-22:1-19 (PG&E Reply Testimony, Higgins).

<sup>104</sup> Ex. 1 at 66 tbl.9 (PWA Report). The Gold Shovel Standard Program requires that contractors submit a qualifying excavation statement, engage in a training program, implement a corrective action process, have two or fewer at-fault dig-ins in the previous 12 months, and possess and maintain valid Gold Shovel Standard certification in order to perform excavation work for PG&E. Ex. 4 at 3-20:18-26 (PG&E Reply Testimony, Higgins). The Habitual Offender Damage Prevention Program identifies contractors and other third parties who are more likely than others to dig into PG&E facilities and recommends appropriate follow-up actions, including working with the contractor to reduce the likelihood of future incidents and to settle PG&E’s outstanding damage claims. *Id.* at 3-21:1-12 (PG&E Reply Testimony, Higgins).

<sup>105</sup> Ex. 4 at 3-21:12-27 (PG&E Reply Testimony, Higgins).

<sup>106</sup> Ex. 1 at 59-67 tbl.9 (PWA Report).

<sup>107</sup> 1/19/16 Tr. at 30:4-14 (SED/PWA).

<sup>108</sup> *Id.* at 31:13 to 33:12 (SED/PWA).

actions exceed gas industry standards confirms PG&E's commitment to continuous improvement and compliance with the standard of care that is discussed in the following section.<sup>109</sup>

**A. PG&E Has Adopted Innovative Technologies That Have Improved the Accuracy of Its Gas Distribution Records.**

One of the primary ways that PG&E is improving the quality of its recordkeeping is through its investment in and implementation of new technologies.<sup>110</sup> The cornerstone of this effort is the Pathfinder Project, which consolidates multiple sources of data about gas distribution assets, much of it previously stored in paper form, into a single electronic mapping system, GD GIS.<sup>111</sup>

GD GIS stitches together tens of thousands of individual plat maps into one continuous electronic map with links to various location-specific asset records.<sup>112</sup> For example, PG&E has scanned millions of GSRs, which are created whenever PG&E installs, replaces, or modifies a gas distribution service line, and connected them to the related pipe segment on the map in GD GIS.<sup>113</sup> The quantity of paper GSRs alone is massive, reaching nearly three times the height of the Empire State Building if they were stacked vertically.<sup>114</sup> GD GIS is also synced in real-time with SAP, PG&E's database for a variety of asset-related information, such as leak repairs.<sup>115</sup> As a result, a GD GIS user can simply click on an asset, such as a particular piece of pipe, to call up a detailed description.<sup>116</sup> Once all of this information was consolidated into a dataset, PG&E layered it over an existing electronic map of the region, which has various natural and manmade

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<sup>109</sup> See *infra* pp. 40-41, Appendix A.

<sup>110</sup> Ex. 4 at 2-10:9-16 (PG&E Reply Testimony, Singh).

<sup>111</sup> *Id.* at 1-13:13-17 (PG&E Reply Testimony, Howe); *id.* at 2-11:1-23 (PG&E Reply Testimony, Singh); see also Ex. 1 at 55:30-36 (PWA Report) (explaining that PWA anticipates that the Pathfinder Project will correct many inaccurate records).

<sup>112</sup> Ex. 4 at 2-13:18-21 (PG&E Reply Testimony, Singh).

<sup>113</sup> *Id.* at 2-11:5-23, 2-12:24 to 2-13:1 (PG&E Reply Testimony, Singh); *id.* at 5-13:17-23, 5-37:26-29 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W014 at W014.001 (PG&E's Response to SED Data Request No. 114).

<sup>114</sup> Ex. 4 at 5-37:26-29 (PG&E Reply Testimony, Singh).

<sup>115</sup> *Id.* at 2-13:18-21, 2-14:8-29 (PG&E Reply Testimony, Singh).

<sup>116</sup> *Id.* at 2-12:16 to 2-13:2 (PG&E Reply Testimony, Singh).

features that provide an additional frame of reference.<sup>117</sup> The result is a rich source of information available at the click of a key.

This digitization of maps and records improves the quality of PG&E's recordkeeping in a variety of ways. Significantly, importing PG&E's maps and records into an electronic database allows the Company to improve the accuracy of the underlying data by using analytical tools to identify inconsistencies or inaccuracies.<sup>118</sup> A prime example is the Problem Action Resolution (PAR) process, which, like GD GIS, PWA recognizes as an "innovative practice" that goes a step beyond the "best practices" in the gas industry.<sup>119</sup> The PAR process automatically flags anomalies in PG&E's data as it is imported into GD GIS.<sup>120</sup> For example, plat maps of two adjacent properties might have indicated that a segment of pipe is one size on one map but a different size on the adjoining map.<sup>121</sup> PG&E then investigates and resolves such apparent discrepancies.<sup>122</sup>

PG&E has also identified opportunities to improve the accuracy of the information in its integrated electronic system by cross-checking the various datasets against each other.<sup>123</sup> For example, when conducting a leak repair, PG&E crews record the size, type, and location of the underground assets.<sup>124</sup> PG&E has used these observations, which are available in its electronic leak repair database, to verify the mapping information in GD GIS.<sup>125</sup> It has also launched an

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<sup>117</sup> *Id.* at 2-12:12-23, 2-13:22-24 (PG&E Reply Testimony, Singh).

<sup>118</sup> *Id.* at 2-13:22-24, 2-16:12-17 (PG&E Reply Testimony, Singh); *see also* Ex. 1 at 55:30-38 (PWA Report) (acknowledging that, assuming continued attention, PG&E's recordkeeping and mapping improvement initiatives will result in more accurate records).

<sup>119</sup> Ex. 1 at 59 tbl.9 (PWA Report); *see* 1/19/16 Tr. at 31:13 to 33:12 (SED/PWA).

<sup>120</sup> Ex. 4 at 2-14:1-6, 2-19:6-23 (PG&E Reply Testimony, Singh).

<sup>121</sup> *Id.* at 2-19:15-17 (PG&E Reply Testimony, Singh).

<sup>122</sup> *Id.* at 2-19:12-23 (PG&E Reply Testimony, Singh).

<sup>123</sup> *Id.* at 2-18:26 to 2-19:3 (PG&E Reply Testimony, Singh).

<sup>124</sup> *Id.* at 2-20:3-9 (PG&E Reply Testimony, Singh); *id.* at 3-6:34 to 3-7:13 (PG&E Reply Testimony, Higgins).

<sup>125</sup> *Id.* at 2-20:3-13 (PG&E Reply Testimony, Singh); *id.* at 3-7:7-18 (PG&E Reply Testimony, Higgins); *id.* at 4-15:16 to 4-16:17 (PG&E Reply Testimony, Trevino); *see also* Ex. 1 at 61 tbl.9 (PWA Report) (acknowledging this measure as an "innovative practice").

effort to specifically compare the leak repair data with GD GIS to identify plastic inserts installed during leak repairs that might not appear on PG&E's maps.<sup>126</sup> As a further example, PG&E is comparing the service meter locations recorded in GD GIS against those recorded in its customer billing database, and investigating and correcting any discrepancies.<sup>127</sup> And PG&E is now making similar comparisons between GD GIS and the maps in Google Earth.<sup>128</sup>

Because of these efforts, the data in PG&E's electronic databases are generally more accurate than the source data from which they originated.<sup>129</sup> And, now that PG&E's records have been largely digitized, the Company will be able to take advantage of further improvements in mapping data and analytical tools to continue improving the accuracy of its records.<sup>130</sup>

**B. New Technologies Also Improve the Accessibility, Completeness, Tracking, and Security of PG&E's Gas Distribution Records.**

Another advantage of electronic recordkeeping is that records can be made readily accessible to PG&E employees and contractors throughout PG&E's system, even while they are working in the field. In recent years, PG&E has been distributing mobile tablets to locate and mark personnel and laptops to gas crews to allow them to access to multiple data sources and the most up-to-date asset information on the GD GIS mobile application.<sup>131</sup> These mobile tools also enable field personnel to create and submit electronic paperwork, such as mapping correction or leak repair forms, in real time as they perform their work, eliminating the opportunity for error that arises whenever information from paper forms must be entered manually into an electronic

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<sup>126</sup> Ex. 4 at 2-20:9-13 (PG&E Reply Testimony, Singh); *id.* at 4-15:16 to 4-16:17 (PG&E Reply Testimony, Trevino).

<sup>127</sup> *Id.* at 2-20:21 to 2-21:1 (PG&E Reply Testimony, Singh); *id.* at 4-21:4-12 (PG&E Reply Testimony, Trevino); *see also* Ex. 1 at 61 tbl.9 (PWA Report) (identifying this measure as a "best practice").

<sup>128</sup> Ex. 4 at 2-21:1-3 (PG&E Reply Testimony, Singh).

<sup>129</sup> *Id.* at 2-18:8-14 (PG&E Reply Testimony, Singh).

<sup>130</sup> *Id.* at 2-21:19-25 (PG&E Reply Testimony, Singh).

<sup>131</sup> *Id.* at 3-13:3-12 (PG&E Reply Testimony, Trevino); *id.* at 5-36:17-20 (PG&E Reply Testimony, Singh); *see also* Ex. 1 at 62 tbl.9 (PWA Report) (recognizing that providing crews with mobile access is a "best practice").

system.<sup>132</sup> PG&E employees can submit these electronic forms with pictures of the assets in the field taken with their smartphones or tablets, a vast improvement on the hand drawings that utilities throughout the country have been relying on for decades.<sup>133</sup>

A related advantage of electronic systems is that they can automatically impose controls on the input and management of data—controls that would have to be performed by an employee if the records were only kept on paper.<sup>134</sup> For example, PG&E’s electronic leak repair form can prevent an employee from finalizing the submission if required information is missing.<sup>135</sup> And electronic systems can automatically monitor workflow, for instance by tracking the speed with which maps are updated following installation work.<sup>136</sup> In part due to this enhanced monitoring capability, the time for updating maps with the results of capital job orders improved from about 75 days on average in 2011 to fewer than 30 days on average in 2014.<sup>137</sup>

Another important consideration for the long-term reliability of PG&E’s records is that data stored electronically are less prone to being misplaced or damaged over time because they can be easily duplicated and maintained in multiple systems as back-up.<sup>138</sup> For all these reasons, PG&E is confident that the investments it has made in the digitization of its asset data will yield returns in increased quality and safety across a wide range of activities for many years to come.

**C. PG&E’s Gas Distribution Control Center and Corrective Action Program Allow PG&E to Monitor Its Distribution System for Issues Affecting Safety.**

Another example of how PG&E is using technology to monitor and improve the safety of its operations is the creation of the Gas Distribution Control Center (GDCC), which went live in

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<sup>132</sup> Ex. 4 at 2-16:8-11, 2-20:14-18, 2-22:10-26 (PG&E Reply Testimony, Singh); *id.* at 3-13:3-12 (PG&E Reply Testimony, Higgins); *id.* at 5-36:15-20 (PG&E Reply Testimony, Singh); *id.* at 6-7:1-6 (PG&E Reply Testimony, Trevino).

<sup>133</sup> *Id.* at 2-22:23-26 (PG&E Reply Testimony, Singh).

<sup>134</sup> *Id.* at 1-14:6-14 (PG&E Reply Testimony, Howe).

<sup>135</sup> *Id.* at 1-14:6-17 (PG&E Reply Testimony, Howe); *id.* at 2-20:14-18 (PG&E Reply Testimony, Singh).

<sup>136</sup> *Id.* at 4-11:29 to 4-12:28 (PG&E Reply Testimony, Trevino).

<sup>137</sup> *Id.* at 4-12:26-28 (PG&E Reply Testimony, Trevino).

<sup>138</sup> *Id.* at 1-14:18-24 (PG&E Reply Testimony, Howe).

2013.<sup>139</sup> The GDCC is a state-of-the-art, 42,000-square-foot facility in San Ramon that serves as PG&E's around-the-clock nerve center, monitoring all aspects of its natural gas system.<sup>140</sup> From this center, the GDCC staff can learn in real time about something as simple as a temporary interruption in gas pressure or as serious as an emergency condition, and they can help coordinate PG&E's response.<sup>141</sup> The GDCC uses a Supervisory Control and Data Acquisition (SCADA) system to monitor the flow of gas.<sup>142</sup> Hundreds of electronic monitors are constantly tracking the flow of gas from strategic locations throughout PG&E's system and are programmed to trigger alarms alerting GDCC staff if an operating condition needs attention.<sup>143</sup> As of December 2014, SCADA units had been installed at 440 sites within the gas distribution system, and PG&E is forecasting completed installation of approximately 925 SCADA sites by the end of 2016.<sup>144</sup>

GDCC staff also oversees the Gas Distribution Clearance Process, a centralized review of all work that will affect the flow of gas in PG&E's distribution mains.<sup>145</sup> Prior to approving such work, the GDCC coordinators confirm that the relevant maps have been updated and that they reflect the work to be performed.<sup>146</sup> After the job is completed, they ensure that the changes to the assets were carried out as planned and are updated in PG&E's records promptly.<sup>147</sup>

Another way in which PG&E has harnessed technology to enhance the safety of its gas distribution operations is by creation of the Corrective Action Program (CAP), another PG&E initiative that PWA describes as an "innovative practice."<sup>148</sup> CAP is a real-time repository of

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<sup>139</sup> *Id.* at 5-2:11-21 (PG&E Reply Testimony, Singh).

<sup>140</sup> *Id.* at 5-2:22 to 5-3:5 (PG&E Reply Testimony, Singh).

<sup>141</sup> *Id.*

<sup>142</sup> *Id.* at 5-3:12-16 (PG&E Reply Testimony, Singh).

<sup>143</sup> *Id.* at 5-3:12-23 (PG&E Reply Testimony, Singh).

<sup>144</sup> *Id.* at 5-3:17-23 (PG&E Reply Testimony, Singh).

<sup>145</sup> *Id.* at 5-4:8-21 (PG&E Reply Testimony, Singh).

<sup>146</sup> *Id.* at 5-4:22-29 (PG&E Reply Testimony, Singh).

<sup>147</sup> *Id.* at 5-4:22 to 5-5:2 (PG&E Reply Testimony, Singh).

<sup>148</sup> Ex. 1 at 63 tbl.9 (PWA Report).

reported issues facing PG&E's system, ranging from a dig-in to a suggestion about how PG&E might improve one of its processes.<sup>149</sup> PG&E employees can submit any issue to CAP either through a paper form, an email, a toll-free number, the internal PG&E website, or a smartphone app.<sup>150</sup> Particularly important for this proceeding, PG&E requires all mapping corrections to be submitted through CAP.<sup>151</sup> Once a CAP report is received, an owner is assigned to assess and address the issue.<sup>152</sup> In some cases, CAP entries trigger requirements for causal investigation to determine the best resolution.<sup>153</sup> CAP utilization has increased steadily; as of August 2015, over 10,000 CAP items had been submitted, indicating robust adoption by PG&E employees since its implementation in October 2013.<sup>154</sup> The average time to address the reported issues has been steadily declining, from nearly 125 days in 2013 to 35 days in the first half of 2015.<sup>155</sup>

Channeling these issues into a single electronic system has numerous advantages. Most importantly, the CAP program leverages inputs from PG&E's employees to identify issues throughout its system and, in many cases, formulate solutions.<sup>156</sup> CAP also enables a designated team to systematically review these inputs, allowing PG&E to prioritize the most urgent items and monitor issues to resolution, tracking even low-priority issues to closure.<sup>157</sup>

In addition, CAP provides a wealth of accumulated information about PG&E's gas distribution system, which enables the Company to more quickly identify recurring issues and analyze their causes and consequences for PG&E's system.<sup>158</sup> For example, CAP tracks the

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<sup>149</sup> Ex. 4 at 5-23:5-16, 5-26:31 to 5-27:22 (PG&E Reply Testimony, Singh).

<sup>150</sup> *Id.* at 5-22:24-28 (PG&E Reply Testimony, Singh).

<sup>151</sup> *Id.* at 5-25:14-26 (PG&E Reply Testimony, Singh); *id.* at 4-5:22 to 4-6:3 (PG&E Reply Testimony, Trevino).

<sup>152</sup> *Id.* at 5-24:13 to 5-25:2 (PG&E Reply Testimony, Singh).

<sup>153</sup> *Id.* at 5-25:3-13 (PG&E Reply Testimony, Singh).

<sup>154</sup> *Id.* at 5-26:15-21 (PG&E Reply Testimony, Singh).

<sup>155</sup> *Id.* at 5-2:15-21 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W113 at W113.001-.002 (PG&E's Response to SED Data Request No. 57).

<sup>156</sup> Ex. 4 at 5-23:8-16, 5-26:31 to 5-27:8 (PG&E Reply Testimony, Singh).

<sup>157</sup> *Id.* at 5-24:13 to 5-25:13 (PG&E Reply Testimony, Singh).

<sup>158</sup> *Id.* at 5-27:9-22 (PG&E Reply Testimony, Singh).

regions where items are submitted and which items are related to recordkeeping corrections.<sup>159</sup> As a result, if, for example, a disproportionate number of mapping corrections were generated by a particular region, that finding could trigger further analysis.<sup>160</sup>

**D. PG&E Is Pioneering New Approaches to the Way Gas Operations Works.**

PG&E has adopted creative new approaches and technologies that allow leak surveillance, construction, and maintenance work to be performed more efficiently and effectively. In 2014, PG&E created a pilot leak detection and repair process called “Super Crew.”<sup>161</sup> This team includes all of the workers who are part of the leak management process—from estimators and leak surveyors, to construction crews, to mapping specialists—in a single, coordinated process.<sup>162</sup> PG&E then deploys the state-of-the-art Picarro Surveyor™ technology to find gas leaks.<sup>163</sup> The Picarro Surveyor™ is a leak detection device that is approximately 1,000 times more sensitive to natural gas detection than any other commercially available leak detection instrument.<sup>164</sup> It is attached to a vehicle that drives slowly through neighborhoods and sweeps for trace gas molecules while analyzing the origins of gas leaks by measuring wind velocity and other factors.<sup>165</sup> A Super Crew of over 50 workers then targets the neighborhood to repair the discovered leaks all at one time.<sup>166</sup>

The Super Crew/Picarro Surveyor™ method identifies up to 80 percent more leaks than traditional methods and repairs leaks about 40 percent faster.<sup>167</sup> In one example of the efficiency gains from this program, 35,000 premises were surveyed for leaks in 17 business days, and the

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<sup>159</sup> *Id.* at 5-27:9-18 (PG&E Reply Testimony, Singh).

<sup>160</sup> *Id.*

<sup>161</sup> *Id.* at 3-6:1-2 (PG&E Reply Testimony, Higgins).

<sup>162</sup> *Id.* at 3-6:6-9 (PG&E Reply Testimony, Higgins).

<sup>163</sup> *Id.* at 3-6:9-11 (PG&E Reply Testimony, Higgins).

<sup>164</sup> *Id.* at 3-6:11-13 (PG&E Reply Testimony, Higgins).

<sup>165</sup> *Id.* at 3-6:13-16 (PG&E Reply Testimony, Higgins).

<sup>166</sup> *Id.* at 3-6:16-18 (PG&E Reply Testimony, Higgins).

<sup>167</sup> *Id.* at 3-6:19-21 (PG&E Reply Testimony, Higgins).

Super Crew repaired more than 2,200 leaks.<sup>168</sup> It would have taken four months or more to accomplish the same amount of work using traditional leak survey and repair methods.<sup>169</sup> PG&E has been expanding this program, and launched its third Super Crew in May 2015.<sup>170</sup>

In addition, the Super Crew/Picarro Surveyor™ method allows PG&E to perform leak surveys regardless of whether the asset records are perfect, and helps improve PG&E's recordkeeping accuracy.<sup>171</sup> The Picarro Surveyor™ does not depend on maps to find leaks, and it can discover leaks even in places where records might not reflect assets.<sup>172</sup> Once a leak is pinpointed, it is fixed, and every time a leak is fixed, a new mobile leak repair form, or "A-Form," is created.<sup>173</sup> The A-Form records numerous data points about the repaired gas asset, such as pipe size, location, material, and many others.<sup>174</sup> This A-Form information is loaded into SAP and details are viewable in GD GIS.<sup>175</sup> Therefore, as more leaks are discovered and repaired during Super Crew work, information in gas distribution records is updated and improved.<sup>176</sup>

In addition, PG&E can use the increased and more accurate output of repaired leak data provided by the Picarro Surveyor™ and the Super Crew to create insightful metrics in GD GIS that flag trending safety issues, not only with physical infrastructure, but also with recordkeeping.<sup>177</sup> For instance, PG&E can combine, compare, and analyze data from A-Forms and from GD GIS to recognize that a large number of leaks are occurring on a certain type of pipe, or in a certain division, and to target physical repair plans there.<sup>178</sup> In short, these

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<sup>168</sup> *Id.* at 3-6:21-24 (PG&E Reply Testimony, Higgins).

<sup>169</sup> *Id.* at 3-6:24-25 (PG&E Reply Testimony, Higgins).

<sup>170</sup> *Id.* at 3-6:25-26 (PG&E Reply Testimony, Higgins).

<sup>171</sup> *Id.* at 3-6:30 to 3-7:21 (PG&E Reply Testimony, Higgins).

<sup>172</sup> *Id.* at 3-6:31-34 (PG&E Reply Testimony, Higgins).

<sup>173</sup> *Id.* at 3-6:34 to 3-7:1 (PG&E Reply Testimony, Higgins).

<sup>174</sup> *Id.* at 3-7:1-3, 3-7:7-9 (PG&E Reply Testimony, Higgins).

<sup>175</sup> *Id.* at 3-7:3-4 (PG&E Reply Testimony, Higgins).

<sup>176</sup> *Id.* at 3-7:4-6 (PG&E Reply Testimony, Higgins).

<sup>177</sup> *Id.* at 3-7:9-13 (PG&E Reply Testimony, Higgins).

<sup>178</sup> *Id.* at 3-7:13-16 (PG&E Reply Testimony, Higgins).

improved leak detection technologies and repair processes allow PG&E to conduct leak survey activities even where there may be gaps in maps and records, and to discover unmapped assets.<sup>179</sup>

Another example of an innovative work practice is the Super Gas Operations (Super Gas Ops) program, which was rolled out starting in May 2014.<sup>180</sup> Super Gas Ops is a uniform, comprehensive work plan for all stages of a Gas Operations construction or maintenance project.<sup>181</sup> The objective of Super Gas Ops is to improve work prioritization, move work more efficiently from the planning stage to completion, and provide physical and electronic means for tracking a job's status at every stage of the process.<sup>182</sup> PG&E is currently implementing Super Gas Ops in its 12<sup>th</sup> division out of the approximately 18 locations where it ultimately will be installed.<sup>183</sup>

**E. PG&E Has Introduced Enhanced Procedures and Training to Improve Its Recordkeeping.**

PG&E has not relied exclusively on electronic means to proactively identify imperfections in its records. In 2011, Gas Operations established a Quality Management (QM) group that reviews a variety of work activities and individual records to confirm that employees are adhering to PG&E's procedures and to identify areas for improvement, a measure that PWA described as an industry "best practice."<sup>184</sup> The QM group specifically reviews the quality of gas distribution records. For example, since 2013 the QM group has reviewed over 2,300 as-builts and GSRs for adherence to the established as-built checklist.<sup>185</sup> The group has now conducted a quality assurance review of over 25,000 records for gas distributions operations and maintenance

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<sup>179</sup> *Id.* at 3-7:19-21 (PG&E Reply Testimony, Higgins).

<sup>180</sup> *Id.* at 3-7:24-25 (PG&E Reply Testimony, Higgins).

<sup>181</sup> *Id.* at 3-7:25-29 (PG&E Reply Testimony, Higgins).

<sup>182</sup> *Id.* at 3-7:29 to 3-8:2 (PG&E Reply Testimony, Higgins).

<sup>183</sup> 1/20/16 Tr. at 308:13-16 (PG&E/Higgins).

<sup>184</sup> Ex. 4 at 5-32:6-12 (PG&E Reply Testimony, Singh); Ex. 1 at 64-65 tbl.9 (PWA Report).

<sup>185</sup> Ex. 4 at 5-33:16-19 (PG&E Reply Testimony, Singh).

activities.<sup>186</sup> Their observations have prompted modifications to records-related processes and trainings.<sup>187</sup>

Records-related training has also been an important component of PG&E's efforts to improve records quality and management. In 2014, 98 percent of the Gas Operations workforce (consisting of about 5,000 employees) received records and information management training, which included information about defining a record and a vital record, and provided information about the difference between a record and a non-record, and about electronic and paper records.<sup>188</sup> In 2015, Gas Operations transitioned to Information Governance training, which is an annual requirement for all employees; as of October 2015, 82 percent of Gas Operations employees had completed that training, and the goal was to have the remaining Gas Operations employees trained by the end of that year.<sup>189</sup>

PG&E has also introduced an enhanced training and development program for all new and existing mappers, and is in the process of creating a revised mapping procedures manual.<sup>190</sup> As mentioned above, together with PG&E's new electronic means for tracking workflow, these improvements have significantly increased the speed with which PG&E's maps are updated.<sup>191</sup> These initiatives are not solely designed to deliver greater speed, however, but also to reduce miscommunication and promote the more consistent and accurate delivery of reports and other information.<sup>192</sup>

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<sup>186</sup> *Id.* at 5-33:25-30 (PG&E Reply Testimony, Singh).

<sup>187</sup> For example, the QM group contributed to new as-built work processes and training provided by PG&E to improve the process for the creation of as-built records. *Id.* at 5-33:19-22 (PG&E Reply Testimony, Singh).

<sup>188</sup> *Id.* at 2-6:16-25 (PG&E Reply Testimony, Singh).

<sup>189</sup> *Id.*

<sup>190</sup> *Id.* at 4-10:13 to 4-11:27 (PG&E Reply Testimony, Trevino).

<sup>191</sup> *Id.* at 4-12:17-28 (PG&E Reply Testimony, Trevino); *see id.* at 4-16:18-22 (PG&E Reply Testimony, Trevino). PG&E uses SAP to track and measure the time required to transfer construction as-built records to PG&E's mapping systems, with set time expectations for the respective stages of mapping to be completed. *Id.* at 2-14:21-29 (PG&E Reply Testimony, Singh); *id.* at 4-11:29 to 4-12:3 (PG&E Reply Testimony, Trevino).

<sup>192</sup> *See id.* at 4-11:25-27, 4-16:23 to 4-17:4 (PG&E Reply Testimony, Trevino).

**F. Independent Third Parties Have Validated the Quality of PG&E's Efforts.**

In addition to PWA's positive evaluation of many of PG&E's efforts, the Company's commitment to continuous improvement in both its records management and safety related practices is objectively demonstrable because it is based on standards published by industry organizations to guide operational improvements inside and outside the gas industry. PG&E's compliance with those standards has been validated by independent third-party auditors.<sup>193</sup>

PG&E has embarked on a multi-year effort to strengthen its records management program, guided by the ARMA International Information Governance Maturity Model (IGMM).<sup>194</sup> One element of that effort was aligning its records and information management program with two international standards for asset management, Publicly Available Specification (PAS) 55 and International Organization for Standardization (ISO) 55001.<sup>195</sup> Lloyd's Register, a recognized third-party accreditation firm, conducted a multi-phase audit of PG&E's implementation of these standards, which included several site visits and scores of employee and contractor interviews.<sup>196</sup> Lloyd's awarded PG&E best practice asset management certifications under both standards, making it the first operator in North America with both certifications.<sup>197</sup> PG&E expects the implementation of these standards to contribute to its improved recordkeeping practices, and these certifications provide objective validation that PG&E's gas system is on the

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<sup>193</sup> *Id.* at 1-21:32 to 1-22:19 (PG&E Reply Testimony, Howe).

<sup>194</sup> Ex. 4 at 2-8:1-4 (PG&E Reply Testimony, Singh). In alignment with that vision, in 2012 Gas Operations published two standards strengthening the operational protocols for identifying, maintaining, organizing, and retaining records. *Id.* at 2-5:18 to 2-6:2 (PG&E Reply Testimony, Singh). PG&E also established its initial vital records inventory in 2014, which involved inventorying and storing hardcopy records from the majority of its Gas Operations facilities. *Id.* at 2-6:4-8 (PG&E Reply Testimony, Singh). In 2015, PG&E began a multi-year effort to address the electronic records portion of the initiative. *Id.* at 2-6:8-10 (PG&E Reply Testimony, Singh). Furthermore, PG&E created Records Information Management (RIM) policies and procedures, provided associated training, appointed RIM coordinators throughout Gas Operations, and held senior-level records management personnel accountable to carry out these measures. *Id.* at 1-21:21-30 (PG&E Reply Testimony, Howe).

<sup>195</sup> *Id.* at 1-21:5-31 (PG&E Reply Testimony, Howe); *id.* at 2-2:29 to 2-3:5 (PG&E Reply Testimony, Singh); *id.* at 2-7:29-34 (PG&E Reply Testimony, Singh).

<sup>196</sup> *Id.* at 1-21:32 to 1-22:19 (PG&E Reply Testimony, Howe); *id.* at 2-8:12-25 (PG&E Reply Testimony, Singh).

<sup>197</sup> *Id.* at 1-22:5-6 (PG&E Reply Testimony, Howe).

right path to becoming one of the safest systems in the United States.<sup>198</sup> PWA assessed PG&E's achievement of these certifications as an "innovative practice."<sup>199</sup>

In addition, PG&E was recently an industry leader in implementing the American Petroleum Institute's (API) Recommended Practice 1173, which provides a framework to pipeline operators for developing and maintaining a safety management system.<sup>200</sup> After reviewing this framework, the National Transportation Safety Board recently classified it as "exceeding expectations," an uncommon designation for NTSB to bestow on an industry-designed recommended practice.<sup>201</sup> PHMSA also played a leadership role in the development of this recommended practice and has expressed its optimism about what the implementation of this practice will mean for enhancing safety performance.<sup>202</sup>

Unaware that PG&E had already been certified as compliant with the API 1173 standard late last year, PWA testified at the hearing that this standard is "hot off the presses" and "just now finding its way into the industry."<sup>203</sup> When told of PG&E's accomplishment, PWA acknowledged that, as far as it is aware, PG&E is the only pipeline operator certified as in compliance with API 1173.<sup>204</sup> These independent certifications provide objective validation of the strength of PG&E's commitment to improving the quality of its recordkeeping and the safety of its system overall.

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<sup>198</sup> See *id.* at 1-23:10-19 (PG&E Reply Testimony, Howe).

<sup>199</sup> Ex. 1 at 64 tbl.9 (PWA Report).

<sup>200</sup> Ex. 4 at 1-19:1-15 (PG&E Reply Testimony, Howe).

<sup>201</sup> *Id.*

<sup>202</sup> Nat'l Transp. Safety Bd., *Safety Recommendation P-12-017, Safety Recommendation History* (Oct. 22, 2015), [http://www.nts.gov/\\_layouts/ntsb.recsearch/Recommendation.aspx?Rec=P-12-017](http://www.nts.gov/_layouts/ntsb.recsearch/Recommendation.aspx?Rec=P-12-017) (NTSB stating in correspondence with API that it "appreciate[s]" the fact that [API] is "consulting NTSB and [PHMSA] staffs" and that it "believe[s] that RP 1173 provides an important framework for the pipeline industry's continuous improvement efforts"); Press Release, American Petroleum Institute, API: Industry Embraces New Pipeline Safety Framework (July 8, 2015), *available at* <http://www.api.org/news-and-media/news/newsitems/2015/july-2015/api-industry-embraces-new-pipeline-safety-framework> (describing RP 1173 as a "standard . . . created with engagement and guidance from . . . the Pipeline and Hazardous Materials Safety Administration (PHMSA)").

<sup>203</sup> 1/19/16 Tr. at 34:25 to 35:7 (SED/PWA).

<sup>204</sup> *Id.* at 37:3-6 (SED/PWA).

### **G. PG&E Continues to Look for Opportunities to Further Improve.**

PG&E has demonstrated a commitment not only to continuously improving its gas distribution system recordkeeping practices and the safety of its distribution system, but also to working with SED and the Commission to pursue these important goals. Throughout this proceeding, PG&E has welcomed PWA's input on ways to further improve the quality of PG&E's recordkeeping.<sup>205</sup> PWA has made a number of such recommendations, which PG&E has agreed to implement or investigate.<sup>206</sup> For example, PG&E has agreed to investigate the practices used by other operators to identify unmapped assets, in addition to those measures PG&E has already implemented.<sup>207</sup> Furthermore, though this issue does not implicate recordkeeping, PG&E has also agreed to consider a policy that would more aggressively eliminate mapped stubs on its system, despite the fact that PG&E already has a policy in place for removing mapped stubs that PWA has described as "proactive."<sup>208</sup>

## **VI. The Standard of Care for Recordkeeping**

### **A. PG&E's Recordkeeping Policies and Practices Should Be Evaluated with Reference to the Standard of Care Supported by Applicable Regulations.**

PG&E agrees that having no errors or omissions in its gas distribution system maps and records is a worthy objective, and it continually strives to improve its recordkeeping procedures and practices with the aim of achieving that ultimate aspiration. However, as explained in the expert testimony proffered by PG&E witnesses Richard Huriaux and Bruce Paskett,<sup>209</sup> the appropriate standard of care for measuring a pipeline operator's compliance with the pipeline safety regulations regarding recordkeeping is what can reasonably be expected to be

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<sup>205</sup> Ex. 4 at 6-15:17-25 (PG&E Reply Testimony, Thierry).

<sup>206</sup> *Id.* at 1-6:17 to 1-8:1 (PG&E Reply Testimony, Howe).

<sup>207</sup> *Id.* at 1-7 tbl. (PG&E Reply Testimony, Howe); *id.* at 5-6:15-17, 5-8:15-17, 5-11:25 to 5-12:13 (PG&E Reply Testimony, Singh); *id.* at 6-15:29 to 6-16:8 (PG&E Reply Testimony, Thierry); *see also supra* p. 16-17 (discussing damage prevention measures); *infra* pp. 54-56 (discussing measures taken after Mountain View and Carmel incidents).

<sup>208</sup> Ex. 1 at 59 tbl.9, 75:37 to 76:2 (PWA Report); Ex. 4 at 5-6:7-10 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W095 at W095.007 (SED's First Responses to PG&E's Data Requests Sets 2 and 3) (stating that a formal program to eliminate stubs would be considered proactive).

<sup>209</sup> Ex. 4 at 7-5 (PG&E Reply Testimony, Huriaux); *id.* at 8-14 (PG&E Reply Testimony, Paskett).

accomplished, not perfection. Indeed, even SED’s experts, PWA, agree that no pipeline operators have perfect records,<sup>210</sup> and that PG&E’s historic records should not be held to a standard of perfection.<sup>211</sup> Rather, the appropriate standard—one that is consistent with the federal pipeline safety regulations that have been developed through a thoughtful, deliberative process with input from stakeholders, including federal and state regulators—asks whether the operator is in *reasonable compliance* with the regulations and whether the operator is *continuously working to improve the quality and accuracy of its maps and records*, based on the *best available information*, in the *normal course of its business*, over time.<sup>212</sup>

**1. PG&E’s Proposed Standard of Care Is Consistent with Cal. Pub. Util. Code § 451.**

This Commission has held that section 451 of the California Public Utilities Code embodies an overarching requirement that a pipeline operator must “at all times maintain safe facilities and operations.”<sup>213</sup> PG&E does not dispute that premise in this proceeding. It is also true, as Mr. Huriaux—a former PHMSA regulator—noted, that section 451 is a statement of a safety goal, and contains no specific standards or objectives against which an operator’s performance can be measured.<sup>214</sup> As Mr. Huriaux explained, in order for section 451 to be reasonably enforceable as a pipeline safety standard, it should be read to incorporate more

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<sup>210</sup> 1/19/16 Tr. at 44:9-10 (SED/PWA) (PWA states that it “[does not] know a pipeline operator who has perfect maps and records.”); Ex. 16 at 5 (SED’s Consolidated Response to Dec. 22, 2015 Meet and Confer Demands & Dec. 1, 2015 Data Requests) (“PWA consultants are not aware of utility companies whose maps and records contain no inaccuracies.”).

<sup>211</sup> 1/19/16 Tr. at 96:26 to 97:7 (SED/PWA); Ex. 2 at 29 tbl.2 (PWA Rebuttal) (stating that “[t]he element of ‘zero defects’ in the proposed Standard of Care was specifically described . . . as applying only to map or record errors created subsequent to PG&E’s deployment of its new GD-GIS”).

<sup>212</sup> Ex. 4 at 7-5 (PG&E Reply Testimony, Huriaux); *id.* at 8-15 (PG&E Reply Testimony, Paskett).

<sup>213</sup> *Investigation of Pac. Gas & Elec. Co.*, D. 15-04-021, 2015 Cal. PUC LEXIS 228, at \*60-61.

<sup>214</sup> 1/21/16 Tr. at 584:28 to 585:4 (PG&E/Huriaux) (stating his “position as a national regulator over many years . . . [was] that section [451] really [does not] contain standards against which performance could be measured”); Ex. 4 at 7-12 (PG&E Reply Testimony, Huriaux).

specific standards with which an operator is expected to comply and which can be used as benchmarks for determining whether violations exist.<sup>215</sup>

A sound and workable approach to applying section 451 to the recordkeeping issues presented by this proceeding would be to incorporate the relevant standards contained in the federal pipeline safety regulations that PHMSA has developed over many years, based on extensive analysis and consultation with stakeholders, as well as the pertinent California statutes.<sup>216</sup> That is exactly the approach proposed by Mr. Huriaux and Mr. Paskett in their written direct testimony. This approach to defining a specific standard for measuring compliance with section 451 is also consistent with the Commission’s own General Order 112-E, which incorporates the federal pipeline safety regulations in prescribing requirements for California intrastate gas pipeline operators.<sup>217</sup>

**2. The Standard of Care Proposed by PG&E’s Experts Is Grounded in the Federal Pipeline Safety Regulations and Related Authoritative Guidance Materials.**

The federal pipeline safety regulations<sup>218</sup> do not explicitly define the standard of care for the accuracy and completeness of distribution pipeline records.<sup>219</sup> While some recordkeeping requirements contained in the federal regulations are prescriptive—such as, for example, the corrosion control records identified in section 192.491—in general the regulations are performance based, in that they instruct the operator at a high level what practices and

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<sup>215</sup> 1/21/16 Tr. at 585:4-9 (PG&E/Huriaux) (“[S]ince . . . California has adopted the federal pipeline safety regulations, it appears to me that those are the standards against which . . . enforcement [of section 451] should be carried out.”); Ex. 4 at 7-12 (PG&E Reply Testimony, Huriaux).

<sup>216</sup> Ex. 4 at 7-12 (PG&E Reply Testimony, Huriaux).

<sup>217</sup> Ex. 9, Attachment E011 (Cal. Pub. Utils. Comm’n, General Order No. 112-E (Aug. 21, 2008)).

<sup>218</sup> 49 C.F.R. pt. 192.

<sup>219</sup> Ex. 4 at 8-3 (PG&E Reply Testimony, Paskett) (“The Standard of Care for the accuracy and completeness of distribution pipeline records is not explicitly defined in state or federal pipeline safety regulations.”).

procedures it must implement, without specifically prescribing the content, accuracy, or completeness of records that the operator must keep.<sup>220</sup>

For example, the provisions of section 192.605(a) require natural gas pipeline operators to “prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.”<sup>221</sup> Section 192.605(b)(3) requires operators to include procedures for “making construction records, maps, and operating history available to appropriate operating personnel.”<sup>222</sup> However, these regulations nowhere state exactly what form the required procedures must take, describe how or what records must be made available, or require that all facility records and maps be free from errors.<sup>223</sup> In fact, the opposite is true; the federal regulations and associated guidance recognize that—as PWA concedes—all gas pipeline operators have imperfect records.

As noted above,<sup>224</sup> in 2004, PHMSA, working closely with state regulators and a wide range of stakeholders, embarked on a program to improve the safety of distribution pipeline operations by requiring pipeline operators to identify and focus on improving in the areas of highest risk. This process eventually led to adoption of the Distribution Integrity Management Program (DIMP) regulations.<sup>225</sup> The first stage in this process was the working group effort that

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<sup>220</sup> 1/20/16 Tr. at 351:12-27 (PG&E/Paskett) (describing the federal regulations as containing “performance oriented language, not prescriptive language” because such regulations “don’t explicitly define or imply what records must be included”); Ex. 4 at 8-4 (PG&E Reply Testimony, Paskett).

<sup>221</sup> 49 C.F.R. § 192.605(a).

<sup>222</sup> 49 C.F.R. § 192.605(b)(3).

<sup>223</sup> The same is true under the *1958 American Standard for Gas Transmission and Distribution Piping Systems* (ASA B.31.8-1958), which the Commission adopted under General Order 112. Ex. 9, Attachment E014 (Am. Soc’y of Mech. Eng’rs, *American Standard for Gas Transmission and Distribution Piping Systems*, ASA B31.8-1958 (1959)). While ASA B.31.8-1958 contains some sections that are prescriptive in nature, the basic requirements contained in section 850.3, similar to those in sections 192.605(a) and (b)(3), are very general, providing that the operator shall have a plan covering operating and maintenance procedures and shall operate and maintain its facilities in conformance with that plan. *Id.* at E014.055. Section 850.3 does not prescriptively define the contents of the plan, state what records are necessary to administer the plan properly, or define any expectation that all facility maps and records will be complete and perfect in every detail. Ex. 15 at E010.055 (Cal. Pub. Utils. Comm’n, General Order No. 112 (July 1, 1961)); Ex. 4 at 8-7 (PG&E Reply Testimony, Paskett).

<sup>224</sup> *See supra* p. 11.

<sup>225</sup> 49 C.F.R. §§ 192.1001-192.1015.

led to issuance of the Phase 1 Report in December 2005.<sup>226</sup> After thoughtful consideration by the working group participants which, as previously noted, included many state regulators,<sup>227</sup> the Phase 1 Report rejected the notion of adopting *prescriptive* pipeline integrity management regulations. The Report’s recommendations were explicitly grounded in the recognition that “the significant diversity among gas distribution pipeline operators . . . makes it impractical to establish prescriptive requirements that would be appropriate for all circumstances.”<sup>228</sup> Instead, the Report recommended a high-level, flexible approach to the integrity management regulations.<sup>229</sup> As noted in the Report, this approach would give pipeline operators “many choices in deciding what actions to take.”<sup>230</sup> The approach described in the Phase 1 Report, which eventually was adopted by PHMSA in the DIMP regulations, is consistent with the standard of care based on reasonableness described by PG&E’s experts.

Before promulgating the proposed DIMP rule, PHMSA and the National Association of Pipeline Safety Representatives (NASPR) petitioned the Gas Piping Technology Committee (GPTC),<sup>231</sup> an independent committee of industry experts, to develop and publish guidance material to assist interested parties in commenting on the proposed rule. Like the proposed regulations, the GPTC DIMP Guidance recognized that operators may have missing or

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<sup>226</sup> See *supra* p. 11.

<sup>227</sup> Ex. 13 at E019.030-.031 (PHMSA Phase 1 Report).

<sup>228</sup> *Id.* at E019.005.

<sup>229</sup> *Id.* at E019.005, E019.013-.014.

<sup>230</sup> *Id.* at E019.015.

<sup>231</sup> GPTC is an independent technical committee consisting of interested experts from natural gas distribution and transmission pipeline operators, manufacturers, and federal and state regulators. Since 1970, the GPTC Committee has published the *GPTC Guide for Gas Transmission and Distribution Piping Systems*, which is recognized by most AGA natural gas distribution operators as the definitive reference to assist them in complying with federal pipeline safety regulations (49 C.F.R. pt. 191). Gas Piping Tech. Comm. (GPTC) Z380, *Guide for Gas Transmission Distribution, and Gathering Piping Systems* (2015) (GPTC Guide). GPTC is accredited by the American National Standards Institute (ANSI) as the ANSI/GPTC Z380 Committee; ANSI is the governing body for consensus standards development in the United States. Ex. 4 at 8-9 (PG&E Reply Testimony, Paskett).

incomplete records for a variety of reasons and that information should be updated as new or better information becomes available through normal activities.<sup>232</sup>

PHMSA published its proposed DIMP regulation for comment in June 2008. The Notice of Proposed Rulemaking acknowledged that there are several reasons an operator might have incomplete information about its system, such as the age of the facilities or changes in ownership during which all of the records were not transferred. Despite this, the proposed rule made clear that operators were not expected go to extraordinary lengths to fill such information gaps:<sup>233</sup>

An operator may not know some necessary information about its infrastructure. In some cases, distribution systems include pipe installed several decades ago, and *reliable records may not exist to provide complete information*. In other cases, distribution systems have grown by acquisition and merger, as multiple pipeline systems came under common ownership. *Complete records may not have been transferred during these changes in ownership, again leading to gaps in the knowledge an operator has about its pipeline system*. This proposed rule does not require operators to engage in extensive investigative programs to uncover information, nor does it require operators to conduct excavations for the sole purpose of revealing information about buried pipe.<sup>234</sup>

The DIMP Final Rule similarly recognized the reality of incomplete records and limited an operator's obligation to address the issue. Consistent with the standard of care set forth by Messrs. Huriaux and Paskett, the Final Rule required operators to undertake "*reasonable effort*"

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<sup>232</sup> See, e.g., Ex. 4 at 8-10 (PG&E Reply Testimony, Paskett) ("In some cases, an operator may be unable to determine the materials or characteristics of some of the components in the system. This may be due to lost records, systems gained through mergers or acquisitions without complete records, or other reasons." (quoting GPTC Guide, app. G-192-8 at § 3.1(d)); *id.* ("Operators may not have all desired records initially, but can still develop a DIMP. An operator would not have to dig up its system just to collect information, but when an operator inspects the pipe whenever it is exposed, the operator should use the occasion to record and evaluate any distribution system unknowns that are available at that location.") (quoting GPTC Guide, app. G-192-8 at § 3.1(f)). The GPTC reaffirmed this guidance regarding DIMP records in July 2015. *Id.* (citing GPTC Guide, app. G-192-8, Addendum 2, July 2015).

<sup>233</sup> Ex. 4 at 8-13 (PG&E Reply Testimony, Paskett); Ex. 9, Attachment E006 at E006.015 (73 Fed. Reg. 36,015 (June 25, 2008)); Pipeline & Hazardous Materials Safety Admin., *Gas Distribution Integrity Management Program: History* (June 15, 2011), [https://primis.phmsa.dot.gov/dimp/docs/History\\_of\\_DIMP\\_06152011.pdf](https://primis.phmsa.dot.gov/dimp/docs/History_of_DIMP_06152011.pdf).

<sup>234</sup> Ex. 9, Attachment E006 at E006.015 (73 Fed. Reg. 36,015 (June 25, 2008)) (emphasis added).

to gather “*reasonably available information*” through their “*normal activities of operating and maintaining*” their pipelines.<sup>235</sup>

Finally, the guidance PHMSA has promulgated since adopting the final DIMP regulation to assist operators with compliance provides further support for the standard of care advanced by PG&E’s experts. PHMSA’s guidance recognizes that operators may have information “gaps due to *missing, inaccurate, or incomplete records*,”<sup>236</sup> but it “does not intend that operators expend excessive effort, review every record available in their archives, or explore every nuance about their pipelines.”<sup>237</sup> Rather, the guidance directs operators to collect such “information that they have *reasonably available*” through their “normal activities,”<sup>238</sup> such as, for example, “the pipeline being excavated for operation, maintenance, or other reasons, to collect additional information.”<sup>239</sup>

**B. The Standard of Care Proposed by SED’s Experts Has No Regulatory or Factual Foundation and Is Not Attainable.**

PWA agrees that no pipeline operator has perfect maps and records.<sup>240</sup> When asked about this issue at the hearing, PWA’s Paul Wood responded:

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<sup>235</sup> Ex. 4 at 8-11 to 8-12 (PG&E Reply Testimony, Paskett); Ex. 9, Attachment E007 at E007.014, .025 (74 Fed. Reg. 63,906 (Dec. 4, 2009)).

<sup>236</sup> Ex. 4 at 8-13 (PG&E Reply Testimony, Paskett); Pipeline & Hazardous Materials Safety Admin., *Gas Distribution Integrity Management Program: FAQs* §§ C.4.a.1, C.4.a.2 (Aug. 2, 2010), C.4.a.5 (Mar. 10, 2011), <https://primis.phmsa.dot.gov/dimp/docsf/faq.pdf>. The same understanding is reflected in California state law. California’s excavation damage prevention law, Cal. Gov’t Code §§ 4216 et seq., contemplates that a pipeline operator’s maps and records may not be perfect. Section 4216.3 states that a gas operator must locate and mark pipes that may be affected by a proposed excavation only “*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.*” Cal. Gov’t Code § 4216.3(a)(1).

<sup>237</sup> Pipeline & Hazardous Materials Safety Admin., *Gas Distribution Integrity Management Program: FAQs* § C.4.a.5, (Mar. 10, 2011), <https://primis.phmsa.dot.gov/dimp/docsf/faq.pdf>.

<sup>238</sup> *Id.* §§ C.4.a.1 (Aug. 2, 2010), C.4.a.5 (Mar. 10, 2011).

<sup>239</sup> *Id.* § C.4.a.2 (Aug. 2, 2010).

<sup>240</sup> Ex. 16 at 5 (SED’s Consolidated Response to Dec. 22, 2015 Meet and Confer Demands & Dec. 1, 2015 Data Requests) (“PWA consultants are not aware of utility companies whose maps and records contain no inaccuracies.”).

A: I don't know a pipeline operator who has perfect maps and records. . . . But it is – to me that is equivalent to asking if there is a pipeline operator that is in full compliance, and I seriously doubt that there is.<sup>241</sup>

Significantly, PWA does not propose finding PG&E in violation of any standard based solely on historic recordkeeping imperfections. Rather, the standard of care proposed by PWA consists of two elements,<sup>242</sup> which PWA refers to as “observables.” The first of these is not a recordkeeping requirement at all, but rather provides that PG&E must have control measures in place that will prevent the occurrence of any “impactful events,” which PWA defines as any event “adversely impacting the safety, health, comfort, and convenience of employees and the public.”<sup>243</sup> Second, PWA would require prospectively that PG&E’s maps and records that are updated or created after full implementation of GD GIS, which occurred in fall of 2015,<sup>244</sup> be 100% perfect.<sup>245</sup> Neither of these elements has any basis in either the regulations or industry standards.<sup>246</sup>

**1. PWA Admits Its Proposed Standard of Care Is Not Found in Any Regulation and Has Not Been Adopted by Any Regulator.**

PWA admits that it “inferred” its proposed standard of care—i.e., that it is not expressly reflected in any regulation—and that such a standard has never been adopted or applied by any

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<sup>241</sup> 1/19/16 Tr. at 44:9-15 (SED/PWA).

<sup>242</sup> PWA’s Initial Report included a third element, “rigorous application of root cause analysis to understand and support correction of contributors to impactful events,” which was not further discussed in the Rebuttal Report or at the hearing. Ex. 1 at 122 attach. D (PWA Report).

<sup>243</sup> 1/19/16 Tr. at 104:25 to 105:5 (SED/PWA); Ex. 2 at 9 (PWA Rebuttal).

<sup>244</sup> Ex. 4 at 2-11:31-33 (PG&E Reply Testimony, Singh).

<sup>245</sup> 1/19/16 Tr. at 95:26 to 96:25 (SED/PWA) (asserting that “PG&E’s maps and records updates or new entries after [the] deployment [of GD GIS] should have zero defects.”); Ex. 2 at 4, 9 (PWA Rebuttal); Ex. 7, Attachment W105 at W105.004 (SED’s Fourth Responses to PG&E’s Data Request Sets 2 and 3) (“[T]he standard of ‘zero defects’ as a stand-alone consideration for citing a violation should apply to ‘ongoing operations’ such as the time of GD-GIS deployment.”).

<sup>246</sup> PWA proposes that the second element, requiring perfect records after adoption of GD GIS, would be applied *prospectively*, and not to the incidents identified in its Report. However, as Administrative Law Judge Bushey observed during the hearing, the scope of this proceeding does not include future regulations. 1/19/16 Tr. at 98:25 to 99:1 (SED/PWA). This element of PWA’s proposed standard of care is therefore also out of scope.

regulator.<sup>247</sup> As noted by both of PG&E’s experts, the proposed “observables” go far beyond the requirements of the federal and state pipeline safety regulations. Regarding the first element, the term “impactful event” is not defined anywhere in the regulations;<sup>248</sup> it was created by PWA for use in this proceeding. As for the second element, there has never been a requirement for error-free maps and records in the federal or state pipeline safety laws and regulations. PWA’s approach is, in fact, directly *inconsistent* with the DIMP regulation, PHMSA guidance regarding the DIMP rule, and the GPTC DIMP guidance.<sup>249</sup> As explained above, in evaluating and recommending measures to improve distribution pipeline safety, including a rule that explicitly focuses on missing or incomplete pipeline information, PHMSA, NAPSRS, and the industry working group expressly rejected a prescriptive, absolutist approach such as the one PWA has devised.

## **2. PWA’s Proposed Standard of Care Is Unattainable.**

Neither element of PWA’s proposed standard of care is achievable by any operator in the nation. PG&E is fully committed to improving its safety performance, as should be evident from the extensive commitments described above, and it has implemented controls and safety management systems to achieve risk reduction. However, transporting natural gas under pressure has an associated inherent risk. Even a pipeline that leads the industry in adopting

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<sup>247</sup> *Id.* at 109:13-19 (SED/PWA); Ex. 2 at 61 (PWA Rebuttal) (“PWA agrees that the Standard of Care for the accuracy and completeness of distribution pipeline records is not *explicitly* defined in state or federal pipeline safety regulations. However, we have used the pipeline safety regulations to infer a Standard of Care.”).

<sup>248</sup> Ex. 2 at 4 (PWA Rebuttal) (citing SED’s response to PG&E Data Request No. 16(a) in which SED defined “impactful event”); *see also* 1/19/16 Tr. at 104:27 to 105:19, 108:7-10 (SED/PWA) (PWA affirming that the definition of “impactful event” that it uses is “[PWA’s] definition” and agrees that “[s]ection 451 doesn’t make any reference to an ‘impactful event,’ which is the phrase [PWA has] come up with”).

<sup>249</sup> Ex. 4 at 7-1 to 7-2, 7-5 to 7-7 (PG&E Reply Testimony, Huriaux); *id.* at 8-14 (PG&E Reply Testimony, Paskett); *see also* 1/20/16 Tr. at 339:15-17 (PG&E/Paskett) (“[S]tate and federal regulators . . . acknowledge that no operator has perfect maps and records . . . .”); *id.* at 339:17-20 (PG&E/Paskett) (“[The] standard of care that was developed through the DIMP regulation was explicitly defined based on [the] knowledge [that no operator has perfect maps and records].”); *id.* at 349:7-9 (PG&E/Paskett) (“[T]he DIMP regulation . . . acknowledges [the existence of errors in records and maps].”).

process safety measures will be at risk for having incidents, or “impactful events,” from time to time.<sup>250</sup> As PWA agrees, it knows of no pipeline operator in the country that does not:

Q. Do you know of any pipeline operator that meets the standard of having no – having measures in place, having no impactful events?

A: I think we answered that in the text that we read earlier, and the answer is no.<sup>251</sup>

Such events can be attributable to many differing factors. The absence of such events does not imply that the operator is necessarily in compliance with the pipeline safety regulations,<sup>252</sup> and their occurrence does not necessarily indicate a violation of the regulations.<sup>253</sup> PWA’s proposal would create a strict liability standard of care without any consideration of the reasonableness the operator’s behavior or of forces outside the operator’s control.

In addition, while PG&E agrees that every pipeline operator should strive to have complete and accurate records, no operator could conform to the standard of 100% perfection, given the limits of technology and the inevitability that human factors may lead to mistakes from time to time. As has been widely acknowledged, including by PWA, no gas operator in the country has achieved it.<sup>254</sup>

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<sup>250</sup> 1/19/16 Tr. at 115:1-10 (SED/PWA) (PWA stating that it “know[s] of [no] pipeline operator that meets the standard of having . . . no impactful events”); Ex. 4 at 8-23 tbl.6 (PG&E Reply Testimony, Paskett) (stating that all operators have excavation damage incidents, as evidenced by summary of excavation damage data for operators in each of 50 states); *id.* at 1-15:12-21 (PG&E Reply Testimony, Howe) (“[A]s is the case in complex industries such as the aviation and automotive industries, for example, no combination of safety measures could ever eliminate risk entirely, short of not operating the system or operating in such a way that service would become slow, cumbersome, and exceedingly expensive.”).

<sup>251</sup> 1/19/16 Tr. at 115:1-10 (SED/PWA).

<sup>252</sup> Ex. 4 at 7-8 (PG&E Reply Testimony, Huriaux).

<sup>253</sup> *Id.*

<sup>254</sup> 1/19/16 Tr. at 44:9-10 (SED/PWA) (“[PWA does not] know a pipeline operator who has perfect maps and records.”); 1/20/16 Tr. at 339:15-17 (PG&E/Paskett) (“[S]tate and federal regulators . . . acknowledge that no operator has perfect maps and records . . . .”); Ex. 16 at 5 (SED’s Consolidated Response to Dec. 22, 2015 Meet and Confer Demands & Dec. 1, 2015 Data Requests) (“PWA consultants are not aware of utility companies whose maps and records contain no inaccuracies.”).

### **3. The “Zero Impactful Events” Element Does Not Pertain to Recordkeeping.**

In addition, the proposed requirement that PG&E must have control measures in place to prevent *any* “impactful event” that is related to an underlying record imperfection from occurring is outside the scope of this proceeding. PG&E agrees that adopting such process safety measures is appropriate and desirable. As is described above, PG&E has invested significant resources, time, and energy in achieving and, in many instances, surpassing, best practices designed to reduce the risk of incidents occurring on its distribution system. However, the focus of this OII is to determine whether PG&E’s *recordkeeping procedures and practices* are consistent with the standard of care. The scope of this proceeding does not include examining whether PG&E’s *controls and process safety measures* are sufficient to prevent 100% of “impactful events” from occurring. PWA’s proposed standard of care, which focuses on that latter question, is misdirected.

#### **C. PG&E’s Record of Continuous Improvement Shows That It Is Meeting and, in Many Instances, Exceeding the Standard of Care.**

As discussed in detail above, the appropriate standard of care related to gas distribution maps and records requires pipeline operators “to continuously improve the quality and accuracy of those records” over time.<sup>255</sup> To that end, PG&E has implemented numerous corrective actions to improve the quality and accuracy of its maps and records and promote operational safety.<sup>256</sup> While PG&E appropriately uses its normal operations and maintenance activities as opportunities to improve its maps and records, PG&E’s efforts are not limited to only these activities.<sup>257</sup> For example, having successfully digitized and transferred many millions of its records to electronic platforms, PG&E is now leveraging those technologies to perform

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<sup>255</sup> Ex. 4 at 8-4 (PG&E Reply Testimony, Paskett).

<sup>256</sup> In addition, PG&E has embarked on multiple initiatives to enhance the accessibility of its gas distribution records, to backstop these records with in-the-field practices that minimize the risk any imperfections may pose to public safety, and to implement other complementary measures that will enhance the safety of its gas distribution system. *See supra* pp. 17-30; *infra* Appendix A.

<sup>257</sup> Ex. 4 at 2-21:29-31 (PG&E Reply Testimony, Singh).

sophisticated analytics to identify and correct errors in its maps and records.<sup>258</sup> PG&E's senior leadership team is committed to these efforts, and has demonstrated its resolve through the successful completion of several significant initiatives in recent years.<sup>259</sup>

PWA has reviewed PG&E's corrective actions and confirmed that PG&E is on the right track. Indeed, PWA acknowledges that "PG&E's current efforts to improve its operation are extensive, and in many cases appear to represent best or innovative practices."<sup>260</sup> Based on these activities, PWA concludes that, "assuming continued attention, we anticipate that many of the inaccurate records will be corrected."<sup>261</sup> This validation by SED's consultant represents an endorsement of PG&E's commitment to continuous improvement.

## **VII. SED Has Not Shown That PG&E's Recordkeeping Procedures and Practices Violate Pipeline Safety Regulations.**

In addition to addressing whether PG&E's recordkeeping practices have compromised the overall safety of its gas distribution system, this proceeding is also intended to determine whether PG&E violated specific pipeline regulatory requirements with respect to recordkeeping.<sup>262</sup> As further explained below, SED has not met its burden of proving any violations by PG&E and has, in fact, overlooked evidence that affirmatively demonstrates PG&E's compliance with recordkeeping regulations.

### **A. A Number of SED's Alleged Violations Have Nothing to Do with Recordkeeping and Are Therefore Outside of Scope.**

In Commission proceedings, the scoping memo defines and limits the "issues to be addressed."<sup>263</sup> The Scoping Memo in this proceeding defines the question before the Commission as whether PG&E violated any applicable laws, regulations, or rules by its

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<sup>258</sup> See *supra* pp. 18-20.

<sup>259</sup> Ex. 4 at 5-37:9-16 (PG&E Reply Testimony, Singh).

<sup>260</sup> Ex. 2 at 43-44 tbl.2 (PWA Rebuttal).

<sup>261</sup> Ex. 1 at 55 (PWA Report)

<sup>262</sup> Scoping Memo at 3.

<sup>263</sup> Cal. Pub. Utils. Comm'n, Rules of Practice & Procedure, Rule 7.3(a); *S. Cal. Edison Co. v. Pub. Utils. Comm'n*, 140 Cal. App. 4th 1085 (2006).

“recordkeeping policies and practices with respect to maintaining safe operation of its gas distribution system.”<sup>264</sup> SED’s experts took an overinclusive approach to identifying purported violations and included many regulations that plainly do not address recordkeeping requirements. At the hearing, SED introduced evidence and made arguments that are similarly unrelated to recordkeeping.<sup>265</sup> Such alleged violations, which are described in Appendices B and C,<sup>266</sup> should therefore be excluded from this OII.<sup>267</sup>

**B. SED Has Not Demonstrated Noncompliance with Pipeline Safety Regulations That Arguably Relate to Recordkeeping.**

Four of the provisions cited in the PWA Report and Rebuttal—49 C.F.R. §§ 192.605(a), 192.13(c), 192.605(b)(3), and 192.603(b)—arguably could be construed as applying to recordkeeping under the interpretation advanced by SED’s experts, and SED has alleged violations of these regulations in connection with the incidents identified in the PWA Report.<sup>268</sup>

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<sup>264</sup> Scoping Memo at 3 (emphasis added).

<sup>265</sup> PWA stated that, “with SED’s concurrence,” it “included all violations it . . . identified within its report,” regardless of whether they were related to PG&E’s recordkeeping policies or practices. Ex. 2 at 17 tbl.1 (PWA Rebuttal). SED’s expert, Mr. Wood, admitted on the stand that PWA had identified “some violations that are not specifically recordkeeping.” 1/19/16 Tr. at 117:10 to 118:9 (SED/PWA). Similarly, Carmel identified seven incidents that were not mentioned in either the OII or PWA’s reports, which Carmel claims show “PG&E doesn’t know what is in the ground.” Ex. 43 at 2:4 to 2:26 (Carmel Testimony, Calhoun). In fact, only one of these incidents had any relationship to PG&E’s recordkeeping. Ex. 4 at 3-35:20 to 3-40:14 (PG&E Reply Testimony, Higgins). However, Carmel does not allege any legal violations in connection with those incidents. For that reason, PG&E does not respond to those allegations in this submission.

<sup>266</sup> Appendix C identifies the regulations and statutes cited in the PWA Report and Rebuttal that are unrelated to recordkeeping requirements.

<sup>267</sup> The Court of Appeal has held that it is grounds for annulment for the Commission to decide issues outside the defined scope, even if the issues were addressed on the merits by the parties. *S. Cal. Edison Co.*, 140 Cal. App. 4th at 1104-07 (annulling portion of Commission decision because the Commission had violated its own procedural rules by deciding a question outside the scoping memo); *see also Investigation of Combined Heat and Power*, D. 11-04-033, 2011 Cal. PUC LEXIS 250, at attach. A, \*118 (Conformed D.10-12-005) (finding that “comments from PG&E and SCE regarding short run avoided cost calculations, as provided in the QF Settlement, are *outside the scope of the Amended Scoping Memo and outside the record of this proceeding, and should therefore be disregarded*”) (emphasis added).

<sup>268</sup> *See* Appendix B at pp. B-8 to B-20 (discussing incidents potentially related to recordkeeping). The facts surrounding the incidents in the record are largely found in PWA’s Report (Ex. 1) and Rebuttal (Ex. 2), PG&E’s Reply Testimony (Ex. 4) and its accompanying Attachments (Exs. 5-10), and PG&E’s Final Statement of Facts (Ex. 6, Attachment W040). The instances where PG&E disagrees with SED’s description of the facts are described in Appendix D.

PG&E respectfully disagrees that it violated any recordkeeping requirements in connection with these incidents.<sup>269</sup> The reasons establishing SED’s failure to prove the alleged violations are described below and, with respect to specific incidents, in Appendix B.

**1. SED Has Not Proven That PG&E Failed to Prepare or Follow an O&M Manual As Required by 49 C.F.R. § 192.605(a).**

SED has alleged a number of purported violations of 49 C.F.R. § 192.605(a), which requires an operator to both “prepare and follow” an Operations and Maintenance (O&M) Manual containing written procedures for conducting such activities.<sup>270</sup> PWA has conceded that it does not allege any failure by PG&E to “prepare” such procedures.<sup>271</sup> Thus, this requirement of section 192.605(a) is not in dispute.

SED contends that PG&E failed to “follow” at least some of the procedures contained in its O&M Manual in regard to 11 of the incidents at issue in this proceeding.<sup>272</sup> However, rather than attempting to prove the elements of such a violation for each instance in which it is alleged,

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<sup>269</sup> Note, however, as discussed *infra* pp. 49-50, PG&E chose not to contest the alleged violation of section 192.605(b)(3) in connection with the Mountain View incident due to the circumstances existing at the time. PG&E stands by that position, but disagrees that it has any broader implications for the interpretation of this regulation or for the other incidents alleged.

<sup>270</sup> Section 192.605(a) is only tangentially related to recordkeeping and does not provide a recordkeeping requirement. To the extent that written procedures in an O&M Manual relate to creating, updating, or maintaining records, it is conceivable that the Commission might view section 192.605(a) as related to recordkeeping, which is why it is addressed here.

<sup>271</sup> See, e.g., Ex. 1 at 1 (PWA Report) (“Violations related to recordkeeping were not the result of defective procedures . . .”); *id.* at 37:27 to 41:5, 42-47 tbl.4 (solely citing section 192.605(a) for failure to follow internal procedures). SED did not request a copy of PG&E’s operations and maintenance manual. 1/19/16 Tr. at 156:11-19 (SED/PWA); *id.* at 156:24 to 157:1 (SED/PWA) (Q. (ALJ Bushey): “[I]t’s important to remember they’re not alleging that the manual doesn’t exist and that’s a violation. They’re just alleging the 605 violations are failure to follow the regulation that you received.”).

<sup>272</sup> SED cites violations of section 192.605(a) in connection with the following incidents: 9/17/2010 Castro Valley, 6/21/2012 Morgan Hill, 10/10/2012 Milpitas, 7/30/2013 Mountain View, 3/3/2014 Carmel, 1/20/2015 San Jose, 8/27/2013 Lafayette, 11/7/2014 San Jose, 3/19/2009 Colusa, 9/28/2010 Alameda, 9/24/2014 Fresno. Ex. 1 at 37:27 to 40:31, 42 tbl.4 (PWA Report); Ex. 2 at 23-24 (PWA Rebuttal); see also 1/19/16 Tr. at 156:24 to 157:3 (SED/PWA); Ex. 1 at 3:36-41 (PWA Report) (listing PG&E’s “[f]ailure to follow written procedures to ensure operating maps and data are updated and accurate” as a “primary area[] of violations”).

as is its burden, SED instead relies on the theory that the mere existence of an imperfect record is sufficient proof that PG&E failed to follow its procedures in creating that record.<sup>273</sup>

To meet its burden of proof, SED must do more than ask the Commission to make the inferential leap backward from an inaccurate record to the conclusion that a procedure must not have been followed at the time the record was created. Such an automatic inference would read a requirement of perfect records into section 192.605(a), a conclusion which finds no support in the regulation and which SED itself has testified is impossible.<sup>274</sup> PHMSA's Operations & Maintenance Enforcement Guidance on 192.605(a) provides examples of the types of evidence necessary to demonstrate a violation, which include specific documentation such as copies of the operator's records indicating that the procedures were not followed, a written record of the observed actions that violated the procedures, documented statements made by representatives of the operator pertaining to missing or inadequate procedures, and incident investigation reports that document failure to follow procedures or problems with the procedures.<sup>275</sup> SED has not presented any such direct evidence showing that PG&E actually failed to follow any identified procedures.<sup>276</sup> On this record, SED has not meet the preponderance of the evidence standard.

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<sup>273</sup> See, e.g., Ex. 1 at 42 tbl.4 (PWA Report) (finding violation of section 192.605(a) for San Jose incident due solely to inaccuracy of map).

<sup>274</sup> 1/19/16 Tr. at 44:9-10 (SED/PWA) (PWA stated that it “[does not] know a pipeline operator who has perfect maps and records.”); 1/20/16 Tr. at 339:15-17 (PG&E/Paskett) (“[S]tate and federal regulators . . . acknowledge that no operator has perfect maps and records . . . .”); Ex. 1 at 2:9-11 (PWA Report) (“The US Department of Transportation Distribution Integrity Management Program (DIMP) regulation recognizes the existence of accuracy and completeness issues in distribution pipeline maps and records.”).

<sup>275</sup> Pipeline & Hazardous Materials Safety Admin., *Operations & Maintenance Enforcement Guidance: Part 192 Subparts L and M* at 14 (“Examples of Evidence”).

<sup>276</sup> See *Greenlining Inst., Latino Issues Forum v. Pac. Bell*, D. 01-04-037, 2001 Cal. PUC LEXIS 384, at \*34 (inferring that procedures are “followed routinely, barring proof to the contrary”); *Williams Gas Pipeline Co.*, CPF No. 1-2005-1007, 2009 WL 7796881, at \*8-9 (U.S. Dep’t of Transp. Jan. 16, 2009) (consent agreement and order) (relying on specific evidentiary support for the claim that the operator had not followed company procedure).

**2. The Alleged Violations of 49 C.F.R. § 192.13(c) Are Duplicative of the Violations Alleged Under 49 C.F.R. § 192.605(a).**

SED also alleges violations of 49 C.F.R. § 192.13(c), which requires a pipeline operator to “maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under *this part*.”<sup>277</sup> The phrase “this part” refers to the entirety of Title 49, Part 192, “Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards.” However, the only procedures that SED has asserted PG&E has failed to follow are those required under section 192.605(a).<sup>278</sup> Therefore, it would be duplicative for PG&E to be found in violation of both section 192.605(a) and section 192.13(c) if, in fact, any such findings were warranted at all.<sup>279</sup> In any event, SED’s efforts to prove violations of section 192.13(c) suffer from the same defects as identified above.

**3. The Record Shows That PG&E Was Not in Violation of 49 C.F.R. § 192.605(b)(3), and SED Has Not Proven Otherwise.**

SED maintains that PG&E has violated section 192.605(b)(3) in connection with 13 of the 19 incidents described in SED’s testimony.<sup>280</sup> Section 192.605(b)(3) requires PG&E to include procedures in its O&M Manual for making certain records *available* to its field personnel.<sup>281</sup> The regulation’s emphasis on the accessibility of records is reflected in PHMSA’s Operations & Maintenance Enforcement Guidance, which emphasizes the format in which

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<sup>277</sup> 49 C.F.R. § 192.13(c) (emphasis added).

<sup>278</sup> SED alleges a violation of section 192.13(c) for five incidents: 9/17/2010 Castro Valley, 4/1/2011 Kentfield, 10/21/2010 Roseville, 10/31/2011 Sacramento, and 8/12/2009 San Ramon. Ex. 1 at 37:27-32, 43-47 tbl.4 (PWA Report).

<sup>279</sup> See, e.g., *Bionghi v. Metro Water Dist.*, 70 Cal. App. 4th 1358, 1370 (1999) (citing *Careau & Co. v. Sec. Pac. Bus. Credit, Inc.*, 222 Cal. App. 3d 1371, 1395 (1990) (explaining that where plaintiff alleges breach of covenant of good faith and breach of contract based on same underlying facts and seeks same damages, former claim “may be disregarded as superfluous as no additional claim is actually stated”).

<sup>280</sup> SED cites violations of section 192.605(b)(3) for the following incidents: 9/17/2010 Castro Valley, 6/21/2012 Morgan Hill, 10/10/2012 Milpitas, 3/4/2013 Milpitas, 7/30/2013 Mountain View, 3/3/2014 Carmel, 1/20/2015 San Jose, 4/1/2011 Kentfield, 10/21/2010 Roseville, 10/31/2011 Sacramento, 9/24/2014 Fresno, 8/12/2009 San Ramon, and 3/19/2009 Colusa. Ex. 1 at 37:27 to 40:31, 42 tbl.4 (PWA Report); Ex. 2 at 21-22 tbl.1 (PWA Rebuttal).

<sup>281</sup> As the legislative history makes clear, section 192.605(b)(3) requires the operator to have procedures allowing its employees to have “direct access to maps, construction records and operating history records without delay.” 59 Fed. Reg. 6,579 (Feb. 11, 1994).

information should be provided and the location of accessible records.<sup>282</sup> It is undisputed that PG&E has the necessary procedures in place for making such records available, and SED has not challenged the adequacy of those procedures.<sup>283</sup> Instead, SED appears to base the alleged violations of section 192.605(b)(3) on its contention that the regulation imposes an unwritten substantive requirement that all records made available to field personnel must be perfect.<sup>284</sup>

While PG&E admits that not all records made available to field personnel were perfect in all instances, SED's interpretation of section 192.605(b)(3) has no basis in the text of the regulation.<sup>285</sup> It would be inconsistent with the federal regulatory scheme to read a requirement of 100% accuracy into section 192.605(b)(3),<sup>286</sup> as even SED concedes that no operator has perfect records<sup>287</sup> and that the federal DIMP regulation contemplates that fact.<sup>288</sup> PG&E witness

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<sup>282</sup> Pipeline & Hazardous Materials Safety Admin., *Operations & Maintenance Enforcement Guidance: Part 192 Subparts L and M* at 17-18 (“Guidance Information”).

<sup>283</sup> 1/19/16 Tr. at 161:11-16 (SED/PWA); Ex. 1 at 1:22-23 (PWA Report) (“Violations related to recordkeeping were not the result of defective procedures, rather resulted from failure to follow the procedures . . . .”); Ex. 4 at 7-2 (PG&E Reply Testimony, Huriaux) (“PG&E is in compliance with section 192.605(b) because it maintains an O&M Manual that contains all the required procedures.”); Ex. 27 at 1-2 (PG&E's Response to SED Data Request No. 23) (PG&E delineated each of its procedures for making asset records available to personnel engaged in operational and maintenance activities).

<sup>284</sup> Ex. 2 at 7-8 (PWA Rebuttal). SED's reliance on PHMSA Final Order CPF No. 5-2008-1005 for this proposition is misplaced. In that case (unlike here), the operator possessed accurate maps for the location but instead chose to provide the locator with inaccurate substitutes. *See Colo. Interstate Gas Co. & El Paso Corp.*, CPF No. 5-2008-1005, 2009 WL 5538649, at \*2-3 (U.S. Dep't of Transp. Nov. 23, 2009) (final order). The Office of Pipeline Safety charged the operator with failing to establish procedures for making construction maps and records available to field personnel, and the Order focuses on the key concept of accessibility, noting that operators “must actually ‘make available’ this information and the word ‘available’ means present and ready for use; at hand, and accessible.” *Id.*

<sup>285</sup> PWA conceded that the regulation does not include the word “accurate” but attempted to read an “intent” into the regulation. 1/19/16 Tr. at 161:17-23 (SED/PWA) (transcript inaccurately cites 605(e)(3); PG&E has requested a correction to 605(b)(3) in its transcript correction motion).

<sup>286</sup> *See* 49 C.F.R. § 192.1007(b) (acknowledging “incorrect operations” as threat to integrity of distribution system).

<sup>287</sup> 1/19/16 Tr. at 44:9-10 (SED/PWA); Ex. 16 at 5 (SED's Consolidated Response to Dec. 22, 2015 Meet and Confer Demands & Dec. 1, 2015 Data Requests) (“PWA consultants are not aware of utility companies whose maps and records contain no inaccuracies.”).

Richard Hurliaux, who, as Director for Regulations and Technical Standards at PHMSA's Office of Pipeline Safety, was directly responsible for interpreting the very same regulations, agrees that "there is no support in the regulation for this view."<sup>289</sup> This conclusion is further supported by PHMSA's Operations & Maintenance Enforcement Guidance, which does not include the mere existence of an inaccurate record as one of the types of evidence demonstrating a violation of section 192.605(b).<sup>290</sup> While PG&E holds itself to the highest of standards in an effort to avoid errors in its records, the law does not require it. SED has not shown that PG&E violated section 192.605(b)(3) for any of the incidents cited.

**4. There Is No Evidentiary Support for Finding a Violation of 49 C.F.R. § 192.603(b).**

SED also alleges that PG&E has violated 49 C.F.R. § 192.603(b), which requires a pipeline operator to "keep records necessary to administer the procedures established under § 192.605."<sup>291</sup> However, SED has neither pointed to any relevant facts in the evidentiary record on which to base a violation of section 192.603(b),<sup>292</sup> nor linked this purported violation to any

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<sup>288</sup> 1/19/16 Tr. at 101:24 to 102:1 (SED/PWA) (agreeing that "the DIMP regulation Section 192.1007(b) acknowledge[s] incorrect operations as a threat, as one of the categories of threats to the integrity of a distribution system"); Ex. 1 at 2:9-11 (PWA Report) ("The US Department of Transportation Distribution Integrity Management Program (DIMP) regulation recognizes the existence of accuracy and completeness issues in distribution pipeline maps and records."); Ex. 2 at 8 (PWA Rebuttal) ("The initial PWA testimony acknowledges that various regulations, including the distribution integrity management program (DIMP) regulation (49 C.F.R. § 192.1007), recognize that distribution maps and records contain errors and omissions.").

<sup>289</sup> See, e.g., Ex. 4 at 7-10 (PG&E Reply Testimony, Hurliaux) (SED's allegation that PG&E is in violation of section 192.605(b) "seems to flow from the assumption that imperfect maps and records are a violation of the regulations . . . [T]here is no support in the regulations for this view.").

<sup>290</sup> Pipeline & Hazardous Materials Safety Admin., *Operations & Maintenance Enforcement Guidance: Part 192 Subparts L and M* at 19 ("Examples of Evidence").

<sup>291</sup> 49 C.F.R. § 192.603(b); Ex. 1 at 4:1-3, 73:8-12 (PWA Report).

<sup>292</sup> Section 192.603(b) might arguably be relevant to the issue of PG&E's missing De Anza Division leak repair records dating from approximately 1979 to 1991. However, although the paper records are missing, the leak repair information contained in the paper records was entered into PG&E's electronic leak data repair systems and remains available today. Thus, the missing leak repair records do not constitute a violation of section 192.603(b) because the paper records were not "necessary to administer the procedures established under [section] 192.605." See also *infra* p. 52.

specific incidents.<sup>293</sup> Because SED has failed to articulate a specific violation of this regulation, neither PG&E nor the Commission can determine the alleged bases for the purported violations. For that reason alone, SED has not met the burden of proof and the Commission should not consider the alleged violations of section 192.603(b).

### **VIII. PG&E Has Undertaken Robust Corrective Actions in Response to the Mountain View and Carmel Incidents to Mitigate the Risk That Similar Incidents Will Occur.**

SED has understandably focused in this proceeding on the events surrounding the incidents in Mountain View and Carmel. PG&E has acknowledged that inaccuracies in its records contributed to these incidents and the seriousness of the property damage and public inconvenience that resulted. As PG&E has explained, however, the regulations do not require perfect records or a system free of “impactful events”<sup>294</sup>—an impossible standard to meet—and PWA has failed to demonstrate that PG&E fell short of what the regulations do require.<sup>295</sup>

Nevertheless, these incidents have raised concerns about certain risks in PG&E’s gas distribution system. PG&E appreciates the opportunity this proceeding provides to explain its actions related to these incidents and how its adoption of various innovative measures have increased the safety of its system, despite the reality of imperfect records.

#### **A. The Incident in Mountain View**

On July 30, 2013, a PG&E construction crew in Mountain View welded a tap fitting onto a steel service line that had a plastic pipe inserted inside it.<sup>296</sup> Because PG&E’s records did not reflect the plastic insert, the crew was unaware that the steel pipe was only a casing for the live plastic line inside.<sup>297</sup> The welding process melted the plastic, releasing gas that traveled down

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<sup>293</sup> Compare Ex. 1 at 16 tbl.2 (PWA Report) (containing specific alleged violations in connection with the Lafayette incident) *with id.* at 4:1-3, 73:8-12 (PWA Report) (containing generalized allegations regarding section 192.603(b) without any link to a specific incident).

<sup>294</sup> See *supra* pp. 37-40 (discussing standard of care).

<sup>295</sup> See *supra* pp. 42-48 (discussing violations).

<sup>296</sup> Ex. 6, Attachment W040 at W040.008 (PG&E’s Final Statement of Facts).

<sup>297</sup> *Id.* at W040.008-.009.

the steel sleeve away from the work area.<sup>298</sup> Fortunately, the leak was repaired before it caused any injury or significant property damage.<sup>299</sup>

### **1. PG&E's Decision Not to Contest SED's Proposed Violation**

Seven months later (and three days after the incident in Carmel), SED informed PG&E that it had concluded its investigation of the Mountain View incident and found PG&E in violation of 49 C.F.R. § 192.605(b)(3).<sup>300</sup> Sumeet Singh responded on behalf of PG&E in a letter to SED dated April 4, 2014.<sup>301</sup> The letter described several measures PG&E had taken to minimize the risk that an incident like Mountain View or Carmel would happen again, including the adoption of a checklist to help PG&E crews detect signs of a plastic insert and the rollout of a new type of tap fitting to prevent welders from accidentally melting or puncturing an insert.<sup>302</sup> PG&E's letter also acknowledged SED's finding that PG&E was in violation of section 192.605(b)(3) and stated, without elaboration, that "PG&E agrees with this violation."<sup>303</sup>

As Mr. Singh explained during his cross-examination, at the time he sent this letter, PG&E had not conducted a regulatory analysis to determine whether providing a construction crew with a map that contains incomplete information constitutes a violation of section 192.605(b)(3), and Mr. Singh had not so concluded in his own mind.<sup>304</sup> In light of the recent incident in Carmel, PG&E was instead focused on addressing the risks posed by unmapped plastic inserts by developing and implementing the corrective actions described in Mr. Singh's letter.<sup>305</sup> PG&E decided not to contest SED's finding, not because it concluded that section 192.605(b)(3) requires perfect records, but because it felt the interests of the Company and the

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<sup>298</sup> *Id.* at W040.008.

<sup>299</sup> *Id.*

<sup>300</sup> Ex. 36 (4/4/2014 Letter from S. Singh to M. Robertson).

<sup>301</sup> *Id.* at 1.

<sup>302</sup> *Id.* at 1-2.

<sup>303</sup> *Id.* at 1.

<sup>304</sup> 1/21/16 Tr. at 466:8 to 467:6 (PG&E/Singh); *see also id.* at 557:7 to 558:13 (PG&E/Singh).

<sup>305</sup> *Id.* at 466:8 to 467:6 (PG&E/Singh).

public would be best served if SED and PG&E moved forward cooperatively to mitigate the risks exposed by the Carmel incident.<sup>306</sup> PG&E stands by that decision.

Mr. Singh's letter regarding the alleged Mountain View violation should not be misinterpreted as a general endorsement of PWA's position that section 192.605(b)(3) requires perfect records. Mr. Singh's testimony is very clear that he signed the April 4, 2014 letter in light of the unique circumstances existing at the time. There is no suggestion in the letter itself that PG&E intended its decision not to contest the Mountain View violation to have any broader effect, nor can that conclusion be drawn from any other evidence in the record. On the contrary, PWA and the regulations both expressly acknowledge that imperfections are present in maps and records throughout the industry.<sup>307</sup> As explained above, section 192.605(b)(3) merely requires operators to have procedures for making maps and records available to personnel. PG&E has such procedures, and SED does not allege otherwise.<sup>308</sup>

## **2. PG&E's Response to the Mountain View Incident**

PWA also argues that the Mountain View incident should have prompted PG&E to make immediate modifications to its work procedures such as those that it implemented after the Carmel incident.<sup>309</sup> PG&E has acknowledged that, with the benefit of hindsight, it could have done more immediately following the Mountain View incident to mitigate the risks of unmapped

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<sup>306</sup> *Id.*; *see also id.* at 557:7 to 558:13.

<sup>307</sup> 49 C.F.R. § 192.1007(a)(3); 1/19/16 Tr. at 44:5-15 (SED/PWA) ("I don't know a pipeline operator who has perfect maps and records."); Ex. 1 at 2:9-11, 36:21-24 (PWA Report); Ex. 4 at 8-10 to 8-13 (PG&E Reply Testimony/Paskett).

<sup>308</sup> *See supra* pp. 45-46; Ex. 27 (PG&E's Response to SED Data Request No. 23) (PG&E delineated each of its procedures for making asset records available to personnel engaged in operational and maintenance activities); *see also* Ex. 1 at 1:22-23 (PWA Report) ("Violations related to recordkeeping were not the result of defective procedures, rather resulted from failure to follow the procedures . . ."); Ex. 4 at 7-2 (PG&E Reply Testimony, Huriaux) ("PG&E is in compliance with 192.605(b) because it maintains an O&M manual that contains all the required procedures.").

<sup>309</sup> Ex. 1 at 3:3-9, 39:32-34 (PWA Report). According to PWA, PG&E's response was inadequate because PG&E did not learn from experience until an incident was "sufficiently high profile that action must [have] be[en] taken." *Id.* at 3:3-9, 39:32-34 (PWA Report). This accusation is baseless. As PWA acknowledges, PG&E has aggressively implemented industry leading tools and procedures for addressing the records related risks to its system, a process that was well underway at the time of the Mountain View incident in mid-2013. *Id.* at 59-67 tbl.9 (PWA Report).

plastic inserts.<sup>310</sup> But PG&E’s response to that incident must be judged in light of the information available at the time. While a PG&E engineer who reviewed the incident recommended consideration of new work procedures for identifying unmapped inserts, neither the Mountain View incident nor his report indicated that these inserts were particularly prevalent in the system.<sup>311</sup> The Mountain View incident caused no injuries and minimal property damage, and at the time PG&E had not identified other similar unmapped plastic inserts in its system.<sup>312</sup> Those are the reasons PG&E did not immediately change its procedures,<sup>313</sup> not because it was complacent about the risks posed by imperfect records.<sup>314</sup> Quite the opposite; as explained above, PG&E has undertaken extensive measures to investigate and address such risks.<sup>315</sup>

### **3. The De Anza Leak Repair Records**

The Mountain View incident investigation report noted that the paper copies of leak repair records for the De Anza Division, which includes Mountain View, from approximately 1979 through 1991, were missing.<sup>316</sup> At the hearing, SED and Carmel attempted to create a linkage between this fact and the Mountain View incident.<sup>317</sup> That inference is unsupported and inaccurate.

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<sup>310</sup> Ex. 4 at 3-26:18-25 (PG&E Reply Testimony, Higgins).

<sup>311</sup> Ex. 6, Attachment W048 (Gas Emergency Plan, Part VI – Division Plans, De Anza Division, Internal Gas Incident Review).

<sup>312</sup> Ex. 1 at 7:12-14 (PWA Report); Ex. 6, Attachment W040 at W040.009 (PG&E’s Final Statement of Facts).

<sup>313</sup> Ex. 4 at 3-28:3-13 (PG&E Reply Testimony, Higgins).

<sup>314</sup> PWA also claims that the relationship between the Mountain View and Carmel incidents constitutes a violation of 49 C.F.R. § 192.617, which requires operators to “establish procedures for analyzing accidents and failures . . . for the purpose of determining the causes of the failure and minimizing the possibility of a recurrence.” Ex. 1 at 40:14-18, 48 tbl.5 (PWA Report). Both because PG&E has such procedures and because this is not a recordkeeping regulation, there is no basis for finding PG&E in violation of section 192.617 here. *See also* Appendices B & C.

<sup>315</sup> *See supra* pp.17-30 (discussing PG&E’s measures); *see also* Appendix B.

<sup>316</sup> Ex. 4 at 3-27:8 to 3-27:10 (PG&E Reply Testimony, Higgins); Ex. 33 (PG&E’s Supplemental Response No. 1 to SED Data Request No. 25).

<sup>317</sup> 1/21/16 Tr. at 473:18-28, 479:9-16, 481:20-27 (PG&E/Singh).

The information in these records was routinely entered into and preserved in an electronic database,<sup>318</sup> so the fact that the paper records are missing does not interfere with PG&E's ability to safely administer its policies as required by section 192.603(b).<sup>319</sup> There is also no basis to believe that these missing records contributed to the Mountain View incident. First, there is no evidence that the plastic insert in Mountain View was installed as part of a leak repair, especially during the period covered by the missing paper records.<sup>320</sup> There is therefore no reason to think that a leak repair record related to that job ever existed.<sup>321</sup> Second, even if the plastic insert in Mountain View had been installed as part of a leak repair, there is no reason to conclude that the loss of the De Anza A-Forms was related to the inaccurate map on which the construction crew relied in that case.<sup>322</sup> According to PG&E's current procedures, when a plastic pipe is installed inside a steel service line, regardless of whether the installation is part of a leak repair, the crew creates a GSR.<sup>323</sup> Mappers then use the GSR, not the A-Form, as the primary basis for updating the plat map.<sup>324</sup>

PG&E takes it seriously any time its records are misplaced. But for all these reasons, there is no basis to believe that the missing De Anza records are related to the Mountain View incident or create any meaningful risk for its distribution system.

## **B. The Incident in Carmel**

On March 3, 2014, a PG&E crew welded a tap fitting onto a steel main in Carmel with the intention of tying in a new plastic main for installation.<sup>325</sup> When the crew retracted the cutter

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<sup>318</sup> *Id.* at 437:23 to 439:17 (PG&E/Trevino); *id.* at 485:1-25 (PG&E/Singh); Ex. 4 at 6-6:29-32 (PG&E Reply Testimony, Thierry); Ex. 33 (PG&E's Supplemental Response No. 1 to SED Data Request No. 25).

<sup>319</sup> *See supra* pp. 47-48.

<sup>320</sup> 1/21/16 Tr. at 483:4 to 484:26 (PG&E/Singh).

<sup>321</sup> As the name would suggest, leak repair records, which are also known within PG&E as "A-Forms," are only created to record information about the repair of a leak. *Id.* at 437:23 to 439:17 (PG&E/Trevino); *id.* at 468:16 to 469:14, 485:1-25 (PG&E/Singh).

<sup>322</sup> Ex. 6, Attachment W040 at W040.009 (PG&E's Final Statement of Facts).

<sup>323</sup> 1/21/16 Tr. at 483:17 to 484:2 (PG&E/Singh).

<sup>324</sup> *Id.* at 413:1-5, 439:2-10 (PG&E/Trevino).

<sup>325</sup> Ex. 6, Attachment W040 at W040.009 (PG&E's Final Statement of Facts).

tool used to punch a hole in the pipe, they extracted a piece of plastic along with a piece of steel.<sup>326</sup> The crew realized that the steel pipe had a plastic insert that did not appear on the PG&E plat map and immediately notified PG&E supervisors, who sent an emergency crew to the scene to stop the flow of gas.<sup>327</sup> Before they could do so, however, the gas migrated through a damaged sewer line and into the unsealed plumbing of a nearby home, where it caused an explosion that produced about \$300,000 in damage.<sup>328</sup> Fortunately, the home was vacant.<sup>329</sup> Following this serious and regrettable incident, PG&E paid \$10.85 million in penalties issued by SED.<sup>330</sup>

### **1. Alleged Regulatory Violations Related to the Carmel Incident**

In this proceeding, PWA claims that PG&E violated section 192.605(b)(3) by failing to update its records following the installation of the Carmel plastic insert, whenever that occurred, and therefore providing the construction crew with an inaccurate record on the day of the incident.<sup>331</sup> For the reasons already explained, the existence of an inaccurate record does not establish a violation of section 192.605(b)(3); the regulation only requires PG&E to have procedures, which PWA agrees that PG&E has.<sup>332</sup> While section 192.605(a) requires operators

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<sup>326</sup> *Id.* at W040.010-.011.

<sup>327</sup> *Id.*

<sup>328</sup> Ex. 6, Attachment W040 at W040.011-.012 (PG&E Statement of Facts); Ex. 43 at 3 (J. Burnett Testimony).

<sup>329</sup> *Id.*

<sup>330</sup> Resolution ALJ-323 (Dec. 8, 2015). On November 20, 2014, SED issued a citation to PG&E alleging two violations related to this incident, for failing to equip its personnel with the tools necessary to stop the flow of gas and for failing to make the surrounding area safe despite signs of a possible leak. *Citation for Violation(s) Issued to PG&E Pursuant to Resolution ALJ-274 of General Order 112-E, ALJ-274 2014-11-001* (Nov. 20, 2014). SED assessed PG&E \$10.8 million in penalties for these violations, which PG&E has paid. *Id.*

<sup>331</sup> Ex. 1 at 40:19-20, 48 tbl.5 (PWA Report).

<sup>332</sup> *See supra* pp. 45-47; Ex. 27 (PG&E's Response to SED Data Request No. 23) (PG&E delineated each of its procedures for making asset records available to personnel engaged in operational and maintenance activities); Ex. 1 at 1:22-23 (PWA Report) ("Violations related to recordkeeping were not the result of defective procedures, rather resulted from failure to follow the procedures . . ."); Ex. 4 at 7-2 (PG&E Reply Testimony, Huriaux) ("PG&E is in compliance with 192.605(b) because it maintains an O&M manual that contains all the required procedures.").

to “follow” those same procedures, PWA has not established that PG&E’s failure to follow a procedure required by any part of section 192.605 is the reason the plastic insert in Carmel was unmapped.<sup>333</sup>

## 2. PG&E’s Response to the Carmel Incident

PG&E regarded the Carmel incident as a matter of very serious concern. Immediately afterward, PG&E instituted a safety stand-down—a cessation of similar work that, in this case, lasted weeks—while the Company investigated the incident and developed an appropriate response.<sup>334</sup> PG&E retained Exponent, a well-respected science and engineering consulting firm, to conduct a causal analysis.<sup>335</sup> Within a month of the incident, in collaboration with Exponent, PG&E had identified and implemented a set of robust corrective actions to address the risks posed by unmapped plastic inserts, most of which were described in Mr. Singh’s letter to the SED on April 4, 2014.<sup>336</sup>

One measure PG&E adopted was the Gas Carrier Pipe Checklist,<sup>337</sup> a series of formal steps that every crew must follow to search for any sign of an inserted plastic pipe before welding or tapping.<sup>338</sup> The Checklist directs the crew to first examine the records in the job package for completeness and consistency.<sup>339</sup> The crew must then review the job site and determine whether the facilities that they see match the records or provide any indication of a plastic insert that does not appear in the records, such as a plastic riser on a gas service.<sup>340</sup> If the crew sees any sign of an unmapped insert as they work through the Checklist, they are required

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<sup>333</sup> 49 C.F.R. § 192.605(a); *see supra* pp. 43-44.

<sup>334</sup> Ex. 1 at 40:21-22 (PWA Report); Ex. 4 at 5-25:8-10 (PG&E Reply Testimony, Singh).

<sup>335</sup> Ex. 4 at 5-28:16-25 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W116 (Exponent, Inc., Carmel Gas Incident (Apr. 2014)).

<sup>336</sup> Ex. 36 (4/4/2014 Letter from S. Singh to M. Robertson).

<sup>337</sup> Ex. 5, Attachment W015 (Notification of Abnormal or Emergency Operating Conditions, Rev. 1, Gas Operations JSSA & Tailboard Briefing) (incorporating Gas Carrier Pipe Checklist).

<sup>338</sup> Ex. 4 at 3-28:22 to 3-29:13 (PG&E Reply Testimony, Higgins).

<sup>339</sup> *Id.* at 5-8:23-26 (PG&E Reply Testimony, Singh).

<sup>340</sup> *Id.* at 5-8:26-30 (PG&E Reply Testimony, Singh).

to stop the job and contact their supervisor.<sup>341</sup> The Quality Management group also visits worksites to conduct random and targeted reviews to confirm the Checklist is being used properly.<sup>342</sup> In 2014, QM assessed the Checklist as being used 95 percent of the time and, in 2015, 98.5 percent of the time—and in the cases where it was not used, CAP items were submitted to correct these issues.<sup>343</sup> PWA agrees that the Checklist appears to be an “effective” backstop measure.<sup>344</sup>

In the event a crew is unable to identify an unmapped insert through the steps described in the Checklist, PG&E has also introduced the Bolt-On Saddle Punch Tee, a new tap fitting designed to prevent plastic inserts from being melted or breached during the welding and tapping process.<sup>345</sup> Because this tapping tool is clamped rather than welded on the pipe, there is no risk of melting a plastic insert.<sup>346</sup> And the penetration distance of the cutter tool used with the Tee is designed to prevent drilling down through the wall of the steel pipe and into a plastic insert.<sup>347</sup> The SED witnessed PG&E’s testing and verification of the Tee and saw that the cutter tool was unable to penetrate the wall of the plastic insert.<sup>348</sup> In its Report, PWA described the Tee as a “very useful” backstop measure for unmapped inserts.<sup>349</sup>

PWA witness John Gawronski testified that these backstop measures should be given time to operate to determine whether they work:

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<sup>341</sup> *Id.* at 5-8:30 to 5-9:2 (PG&E Reply Testimony, Singh). The new checklist was introduced to all personnel who perform welding or tapping on distribution facilities systemwide through a training in March 2014. Ex. 7, Attachment W096 (5 Minute Meeting: Gas Carrier Pipeline Verification). Since June 2014, PG&E has been reinforcing this message by expressly reminding employees and contractors that anyone can stop a job if he or she discovers a recordkeeping inconsistency. Ex. 4 at 3-4:16-19 (PG&E Reply Testimony, Higgins).

<sup>342</sup> Ex. 4 at 5-9:23 to 5-10:8 (PG&E Reply Testimony, Singh).

<sup>343</sup> *Id.* at 5-33:8-11 (PG&E Reply Testimony, Singh).

<sup>344</sup> Ex. 1 at 65 tbl.9 (PWA Report).

<sup>345</sup> Ex. 4 at 5-10:12 to 5-10:16 (PG&E Reply Testimony, Singh).

<sup>346</sup> *Id.* at 5-10:29 to 5-10:31 (PG&E Reply Testimony, Singh).

<sup>347</sup> *Id.* at 5-10:31 to 5-11:4 (PG&E Reply Testimony, Singh).

<sup>348</sup> *Id.* at 5-11:12-14 (PG&E Reply Testimony, Singh).

<sup>349</sup> Ex. 1 at 68:9-13 (PWA Report).

A: Right now they do have a backstop procedure that tries to attempt to prevent an unsafe condition. And at this point in time . . . I would be willing to give it a chance to see it work and determine whether or not it does in fact work and prevent any further accidents like the one that happened in Carmel and the one that happened in Mountain View.<sup>350</sup>

PG&E has also been leveraging new technology to proactively identify unmapped inserts in its system. For example, by comparing its leak repair database with information in GD GIS, PG&E is working to identify any leak repairs where plastic inserts were used as the repair method, but do not appear on PG&E's GD GIS maps.<sup>351</sup> PG&E is also collaborating with a technology company to research new tools for detecting plastic pipe in steel lines, such as by analyzing sound wave patterns.<sup>352</sup>

Of course, these are only the measures PG&E has pursued to specifically address the risks posed by plastic inserts. As already described, PG&E has adopted a number of other significant initiatives, such as GD GIS and CAP, that further mitigate those risks by generally improving PG&E's recordkeeping and backstopping imperfect records.<sup>353</sup> PG&E believes it is doing everything feasible to reduce the risk that an incident like Mountain View or Carmel will happen again.

#### **IX. PG&E's Alternative Method for Setting MAOP Is Safe, Consistent with Regulatory Guidance, and Has Been Reviewed by SED.**

In 2013, following a routine audit, SED provided written approval for PG&E's alternative method for setting the maximum allowable operating pressure (MAOP) on parts of its distribution system.<sup>354</sup> In this proceeding, PWA did not reach any conclusion that use of this

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<sup>350</sup> 1/19/16 Tr. at 170:1-9 (SED/PWA).

<sup>351</sup> Ex. 4 at 4-16:16-17(PG&E Reply Testimony, Trevino).

<sup>352</sup> *Id.* at 5-12:8-13(PG&E Reply Testimony, Singh).

<sup>353</sup> *See supra* pp. 17-30; *see also* Appendix A.

<sup>354</sup> Ex. 8, Attachment W131 (Excerpt of Letter from Michael Robertson of SED to Jane Yura of PG&E (July 2, 2013)). And as to addressing the grandfather clause for *transmission* pipelines, the CPUC has ordered all California gas operators to test or replace all transmission pipelines that have not been previously pressure tested. *Order Instituting Rulemaking on the Comm's Own Motion to Adopt New Safety & Reliability Regulations Nat. Gas Transmission & Distribution Pipelines & Related Ratemaking Mechanisms*, D.11-06-017, 2011 Cal. PUC LEXIS 324.

alternative method poses any safety risk. Nonetheless, PWA argues that this same method is inconsistent with 49 C.F.R. § 192.619(c) and that PG&E should therefore be found in violation for using that methodology.<sup>355</sup> PG&E submits that it should not be sanctioned for a longstanding policy that is consistent with regulatory guidance and that has been reviewed multiple times and recently approved by SED.

#### **A. The Recordkeeping Issue**

Section 192.619 generally requires operators to use a combination of design specifications and pressure tests to set the MAOP.<sup>356</sup> But for those portions of a system that were already in place when the regulation was promulgated in 1970, a grandfather clause—section 192.619(c)—provides an alternative method. It permits an operator to set the MAOP as the highest pressure to which the system was subjected during the five years preceding July 1, 1970.<sup>357</sup>

For a number of its gas distribution systems that were in place in 1970, PG&E established MAOP using a pressure log or similar paper record reflecting the highest operating pressure from July 1, 1965 through July 1, 1970.<sup>358</sup> For approximately 243 of those systems, however, PG&E was unable to locate paper records reflecting the operating pressure during that time frame.<sup>359</sup> It

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<sup>355</sup> 1/19/16 Tr. at 57:15-20, 58:22 to 59:5 (SED/PWA) (“We have not attempted to evaluate whether or not PG&E’s procedure is reasonable or appropriate or results in a safe condition.”); Ex. 1 at 49:1 to 54:3 (PWA Report). PWA further claimed in its written testimony and during cross-examination that PG&E’s method for setting MAOP was somehow in violation of section 303 of General Order 112. 1/19/16 Tr. at 66:24 to 67:15 (SED/PWA); Ex. 1 at 28 tbl.3, 114-115 attach. C (PWA Report); Ex. 2 at 30 tbl.2 (PWA Rebuttal). However, PWA admitted during cross-examination that they had misquoted the relevant code section in their report, and that it in fact says nothing about maximum allowable operating pressure. 1/19/16 Tr. at 67:16 to 70:27 (SED/PWA); *see* Ex. 15, Attachment E010 at E010.007-.058 (Cal. Pub. Utils. Comm’n, General Order No. 112 (July 1, 1961)).

<sup>356</sup> 49 C.F.R. § 192.619.

<sup>357</sup> *Id.* § 192.619(c).

<sup>358</sup> Ex. 4 at 5-15:6-9 (PG&E Reply Testimony, Singh).

<sup>359</sup> *Id.* at 5-15:9-11 (PG&E Reply Testimony, Singh). As Mr. Singh explained during the hearing, PG&E’s review of its MAOP-related records on its distribution system is ongoing, and the approximately 243 systems reflect PG&E’s best available information at the time Mr. Singh submitted his written testimony. 1/21/16 Tr. at 445:27 to 446:22 (PG&E/Singh).

appears that this recordkeeping issue led SED to introduce the MAOP issues into this proceeding.<sup>360</sup>

**B. PG&E’s Method Is Consistent with the Guidance Provided by PHMSA.**

To address the absence of pre-1970 operating pressure records for some of its distribution assets, in 1978 PG&E adopted procedures that provide two alternative methods for establishing the MAOP under the grandfather clause (the “alternative method”).<sup>361</sup> *First*, if PG&E personnel were knowledgeable regarding the particular system during the five-year period referenced in section 192.619(c), they could certify that the current pressure was the same as during that prior period. *Second*, the MAOP could be established by using an operating pressure determined at the time of a successful leak survey after July 1, 1970.<sup>362</sup>

**1. Employee Certification of Operating Pressure Is Consistent with PHMSA’s Regulatory Guidance.**

With respect to the first part of PG&E’s alternative method for setting MAOP, the regulations nowhere indicate how an operator must determine what the historical operating pressure was from 1965 to 1970.<sup>363</sup> PHMSA has said on several occasions that paper records are not required and, in guidance issued in 1986, it stated that “sworn statements by the operators”

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<sup>360</sup> This issue was first injected into this proceeding when SED issued PG&E several data requests seeking documents and information regarding PG&E’s method for setting distribution system MAOP. PWA alleged that PG&E’s method was in violation of the regulations, and PG&E responded in its reply testimony on November 12. Ex. 1 at 49:1 to 54:3 (PWA Report); Ex. 4 at 5-14:12 to 5-15:28 (PG&E Reply Testimony, Singh). The issue is therefore fully presented and able to be resolved on this record, which would be the most efficient means for utilizing the Commission’s and SED’s resources and clarifying PG&E’s regulatory obligations going forward.

<sup>361</sup> Ex. 4 at 5-15:11-13 (PG&E Reply Testimony, Singh).

<sup>362</sup> *Id.* at 5-15:14-28 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W098 at W098.002 (Utility Procedure TD-4125P-01, Rev. 0, Establishing and Maintaining Distribution MAOP Records).

<sup>363</sup> 49 C.F.R. § 192.619.

are adequate for that purpose.<sup>364</sup> Mr. Gawronski has in the past agreed. Though he claimed the practice created uncertainty, he testified in a 2012 proceeding involving PG&E that, “in order to accommodate operators that may be missing pertinent records, *an operator may use a notarized affidavit to determine the historic MAOP.*”<sup>365</sup> Accordingly, the first method for setting MAOP challenged by PWA is appropriate and permitted.

## **2. The Use of Post-1970 Operating Pressure Is Consistent with PHMSA’s Regulatory Guidance.**

Concerning the second part of PG&E’s alternative second method for setting MAOP under the grandfather clause, PHMSA clarified in its 1998 guidance<sup>366</sup> that the use of operating pressure records other than the highest operating pressure from 1965-1970 is appropriate whenever “distribution system records are missing or incomplete.”<sup>367</sup> In those circumstances, according to PHMSA, the operator “should look at the normal operating pressure over the last 5 years, and select the highest pressure which did not cause unusual safety or operational problems.”<sup>368</sup> This is what PG&E’s second method, which sets MAOP based on the operating pressure at the time of the most recent successful leak survey, accomplishes—a leak survey assesses whether the pressure is causing any unusual safety or operational problems, and PG&E conducts these surveys on every section of its gas distribution systems at least every five years.<sup>369</sup>

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<sup>364</sup> Ex. 4 at 5-16:15 to 5-17:4 (PG&E Reply Testimony, Singh); *see* 77 Fed. Reg. 26,822 (May 7, 2012); Pipeline & Hazardous Materials Safety Admin., *Gas Transmission Integrity Management: FAQs* § 205 (Dec. 6, 2004), <http://primis.phmsa.dot.gov/gasimp/faqs.htm>; Ex. 10, Attachment W100 at W100.003 (Pipeline & Hazardous Materials Safety Admin., *Interpretation # PI-86-005* (Aug. 4, 1986), *available at* <http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Interpretation%20Files/Pipeline/1986/PI86005.pdf>); *id.*, Attachment W101 at W101.005-.006 (Letter from Pipeline & Hazardous Materials Safety Admin. to West Texas Gas, Inc. enclosing *West Texas Gas, Inc.*, CPF No. 4-2004-1007 (U.S. Dep’t of Transp. Sept. 13, 2006) (final order));

<sup>365</sup> 1/19/16 Tr. at 63:18 to 65:21 (SED/PWA); Ex. 14 at 8:11-12 (J. Gawronski Direct Testimony, Docket No. I.11-02-016) (emphasis added).

<sup>366</sup> Ex. 1 at 50:14-20 (PWA Report) (quoting Pipeline & Hazardous Materials Safety Admin., *Determination of Maximum Allowable Operating Pressure in Natural Gas Pipelines* (Apr. 22, 1998)).

<sup>367</sup> *Id.*

<sup>368</sup> *Id.* at 50:14-20 (PWA Report).

<sup>369</sup> Ex. 4 at 5-15:18-20, 5-21:8-10 (PG&E Reply Testimony, Singh).

**C. SED Has Reviewed and Approved the Use of PG&E’s Alternative Method for Setting MAOP.**

PWA claims that PG&E is nevertheless in violation of section 192.619(c) for failing to receive “formal CPUC approval” for the use of post-1970 operating pressures.<sup>370</sup> But PHMSA’s regulatory guidance does not require operators to obtain “approval” from their regulator, either formal or otherwise, but rather instructs them to “consult” with the regulator.<sup>371</sup> While PG&E does not have a complete record of its correspondence with the Commission dating back to the adoption of this policy in the 1970s, it is undisputed that SED (and its predecessor agency) has repeatedly reviewed PG&E’s distribution operations and maintenance practices, which include setting MAOP, since at least 1997 in connection with nearly annual audits;<sup>372</sup> PG&E specifically described its alternative method for setting MAOP to SED in 2008, both in writing and during an in-person meeting; and SED has made no objection to its use.<sup>373</sup>

During an SED audit spanning 2010 to 2013, SED requested and reviewed the alternative MAOP procedure, as well as documentation showing that 2010 leak survey results had been used to set the MAOP on one of PG&E’s distribution systems.<sup>374</sup> PG&E specifically advised SED that it had set MAOP “by utilizing the procedures specified in TD-4125P-01, *Establishing & Maintaining Distribution MAOP Records*”—the PG&E procedure now in dispute—and provided

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<sup>370</sup> Ex. 1 at 75:37-40 (PWA Report); *see also id.* at 52:24-26 (PWA Report).

<sup>371</sup> *Id.* at 50:14-20 (PWA Report).

<sup>372</sup> Ex. 4 at 5-19:6-12 (PG&E Reply Testimony, Singh); Ex. 8, at Attachments W121-W128 (CPUC Natural Gas & Propane Safety Reports for PG&E (1997-2008)).

<sup>373</sup> Ex. 4 at 5-18:5-8 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W102 (Summary of Peninsula Division CPUC Audit (July 19, 2008)); *id.*, Attachment W103 (White Paper, Peninsula Division, Missing MAOP Documentation (July 29, 2008)); *id.*, Attachment W104 at W104.003 (Letter from Glen Carter, PG&E to Sunil Shori, Cal. Pub. Utils. Comm’n (Dec. 30, 2008)).

<sup>374</sup> Ex. 4 at 5-20:3-17 (PG&E Reply Testimony, Singh); Ex. 7, Attachment W106 at W106.013 (Letter from Glen Carter, PG&E to Banu Acimis, Cal. Pub. Utils. Comm’n); Ex. 8, Attachment W120 (Email Exchange between Laurence Deniston of PG&E and Banu Amicis of SED (Mar. 23, 2011)); *id.*, Attachment W129 (Email Exchange between Banu Amicis of SED and Lawrence Berg of PG&E regarding Data Requests and Responses for 2010 Sacramento Division Audit (June 11-14, 2012)); *id.*, Attachment W130 (“MAOP-178.pdf” produced to SED in response to Data Request 2981 on June 14, 2012).

SED with a copy of that procedure and all related documentation.<sup>375</sup> SED raised no objection to either the procedure generally or its use in that instance. Rather, at the close of the audit in 2013, SED sent PG&E a letter stating that it “*accepts PG&E’s explanation and corrective action to re-establish the MAOP documentation*” for that system.<sup>376</sup> Thus, SED has been aware of PG&E’s alternative method for setting MAOP for years without raising any objection and has expressly approved its use on PG&E’s distribution system.

**D. It Is Undisputed That PG&E’s Method for Setting MAOP Is Safe.**

As PG&E explained to SED in 2008, there is no reason to think that the alternative method for setting MAOP creates any safety risk,<sup>377</sup> and PWA has not disputed this conclusion.<sup>378</sup> There is nothing inherent in PG&E’s alternative method that would lead to setting a higher MAOP or create a greater safety risk. In fact, PG&E’s distribution systems operate at considerably less than 20 percent of their maximum potential stress levels and accordingly operate with a significant margin of safety with respect to their operating pressure.<sup>379</sup>

Because the pressure of gas distribution lines is relatively low, if failures occur, they typically involve leaks rather than ruptures.<sup>380</sup> Consistent with the federal and state safety regulations, PG&E consistently monitors all of its distribution systems for leaks by conducting leak surveys at least once every five years and, in some cases, annually.<sup>381</sup> Notably, in many urban areas PG&E now uses the Picarro-based leak survey technology that is nearly a thousand

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<sup>375</sup> Ex. 7, Attachment W106 at W106.013 (Letter from Glen Carter, PG&E to Banu Acimis, Cal. Pub. Utils. Comm’n); Ex. 8, Attachment W120 (Email Exchange between Laurence Deniston of PG&E and Banu Amicis of SED (Mar. 23, 2011)); *id.*, Attachment W129 (Email Exchange between Banu Amicis of SED and Lawrence Berg of PG&E regarding Data Requests and Responses for 2010 Sacramento Division Audit (June 11-14, 2012)); *id.*, Attachment W130 (“MAOP-178.pdf” produced to SED in response to Data Request 2981 on June 14, 2012).

<sup>376</sup> Ex. 8, Attachment W131 at W131.003 (Excerpt of Letter from Michael Robertson of SED to Jane Yura of PG&E (July 2, 2013)).

<sup>377</sup> Ex. 7, Attachment W103 at W103.002 (White Paper, Peninsula Division, Missing MAOP Documentation (July 29, 2008)).

<sup>378</sup> Ex. 2 at 29 tbl.2 (PWA Rebuttal).

<sup>379</sup> Ex. 4 at 5-21:4-6 (PG&E Reply Testimony, Singh).

<sup>380</sup> Ex. 13 at E019.008 (PHMSA Phase 1 Report).

<sup>381</sup> Ex. 4 at 5-21:6-13 (PG&E Reply Testimony, Singh).

times more sensitive than the traditional commercially available leak survey equipment.<sup>382</sup> But despite the fact that there is no reasonable basis to conclude that a safety risk exists, PG&E is in the process of comparing the leak survey results for the 243 systems at issue against PG&E's other systems to confirm that they are not more prone to leaks, as PWA recommended.<sup>383</sup>

## **X. Conclusion**

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. PG&E submits that its investments and initiatives to improve the accuracy of its gas distribution records and minimize the risk of incidents on PG&E's gas distribution system comply with an appropriate standard of care that implements the safety mandate the Commission has held is incorporated in section 451, and is consistent with the federal and state pipeline safety regulations. While PG&E acknowledges that more work remains to be done—because, when it comes to safety, there is always work to be done—it respectfully disagrees that it has violated the statutory provisions and regulations alleged by SED.<sup>384</sup>

PG&E supports many of the further actions recommended by PWA and has already either implemented these initiatives or is conducting the recommended investigations and analyses. PG&E looks forward to working cooperatively with the Commission and SED to identify and consider further opportunities to continue improving its recordkeeping and other practices to better serve the public and promote the safety of its employees, contractors, and the communities it serves.

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<sup>382</sup> *Id.* at 5-21:13-15 (PG&E Reply Testimony, Singh).

<sup>383</sup> Ex. 1 at 75:37 to 76:2 (PWA Report); Ex. 4 at 5-21:16-20 (PG&E Reply Testimony, Singh).

<sup>384</sup> PG&E does not address the issue of a penalty in this submission because no penalty proposal has been put forward by SED or Intervenors.

Respectfully submitted,

*/s/ Elizabeth Collier*

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ALEJANDRO VALLEJO  
ELIZABETH COLLIER  
Pacific Gas and Electric Company  
Law Department  
77 Beale Street  
San Francisco, CA 94105  
Telephone: (415) 973-1611  
Facsimile: (415) 973-0516  
Email: axvu@pge.com  
Email: eacp@pge.com

*/s/ Marie L. Fiala*

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MARIE L. FIALA  
JOSHUA HILL  
Sidley Austin LLP  
555 California Street  
San Francisco, California 94104  
Telephone: (415) 772-1200  
Facsimile: (415) 772-2400  
Email: mfiala@sidley.com  
Email: jhill@sidley.com

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

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