

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

Order Instituting Investigation 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 Transmission System Pipelines.

I.11-02-016  
(Filed February 24, 2011)

**OPENING BRIEF OF THE CITY AND COUNTY OF SAN FRANCISCO**

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## I. INTRODUCTION AND SUMMARY

The California Public Utilities Commission (Commission) opened this investigation to review whether PG&E’s gas recordkeeping violated any laws, rules, or orders related to safety and determine whether “PG&E’s recordkeeping practices for its entire gas transmission system have been unsafe and in violation of the law.”<sup>1</sup> The Commission noted that the scope of this investigation is broad “because we will review evidence to determine whether deficient recordkeeping may adversely affect and reduce safety in design, construction, operations, testing, maintenance, inspection, risk assessment, and pipe replacement.”<sup>2</sup>

Deficiencies in PG&E’s recordkeeping practices were identified in reports outside of this proceeding. The National Transportation Safety Board (NTSB) and the Commission’s Independent Review Panel (IRP) both found serious inadequacies in PG&E’s recordkeeping.<sup>3</sup> The evidentiary record here supplements those with the substantial report issued by the Consumer Protection and Safety Division (CPSD), testimony submitted by the City and County of San Francisco (CCSF or San Francisco), the City of San Bruno, and The Utility Reform Network (TURN), and voluminous testimony and exhibits submitted by PG&E. The record presents substantial evidence that PG&E’s recordkeeping practices violated state and federal laws and regulations and were contrary to accepted engineering practices and prudent utility operations. These practices increased the risk of harm to PG&E’s employees and the public and at least contributed to the explosion in San Bruno on September 9, 2010.

In this context, the Commission cannot assure the public “that PG&E has conducted good and safe engineering practices in compliance with the law, and has accurate and up-to-date

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<sup>1</sup> Order Instituting Investigation on the Commission’s Own Motion Into the Operations and Practices of PG&E with Respect To Facilities Records for its Natural Gas Transmission System Pipelines (OII) at p. 1.

<sup>2</sup> OII at p. 10.

<sup>3</sup> The NTSB Report is discussed below. The IRP Report found, among other things: “The lack of data to characterize a significant portion of PG&E’s pipeline remains a critical gap . . .” p. 73; see also p.58-63.

knowledge of critical aspects of its transmission pipeline system.”<sup>4</sup> Given the inherent dangers of transporting gas at high pressures and PG&E’s obligations to protect its employees and the public, the Commission and the public rightly expect the highest degree of care from PG&E.<sup>5</sup> The evidentiary record in this proceeding demonstrates that for many years PG&E has not exercised such care and has not satisfied the recordkeeping obligations necessary to comply with the law or ensure the safe operation of its system.

PG&E admits that, without records, it cannot determine when pipelines have reached an age where they need to be replaced,<sup>6</sup> track reconditioned pipe,<sup>7</sup> or demonstrate to regulators that it has not exceeded the over-pressurization limits set by code.<sup>8</sup> In other words, utility records are necessary not just to comply with regulations, but, even more importantly, to prudently perform the activities essential to operating its system reliably and safely. Yet, as discussed below, PG&E’s testimony here repeatedly disparages the importance of recordkeeping and denies PG&E’s failure to comply with recordkeeping requirements. One of PG&E’s expert witnesses states that recordkeeping is not an integral part of the operation and maintenance of gas pipelines.<sup>9</sup> This testimony raises serious doubt regarding whether the utility has changed, intends to change, or even recognizes the need to change its recordkeeping practices as a result of the aftermath of the San Bruno explosion.

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<sup>4</sup> Id.

<sup>5</sup> The Commission has noted that gas is a highly combustible and volatile element, possessing explosive characteristics under certain conditions. (D. 61269, Adopting General Order 112, at p. 5.5) Both members of the public and PG&E employees are “entitled to expect that PG&E will transport gas as safely as reasonably possible.” (OII at p. 9-10)

<sup>6</sup> Joint RT 737:12-22 (Zurcher).

<sup>7</sup> Joint RT 778:6-11 (Zurcher).

<sup>8</sup> RT 1679:8-12 (Keas).

<sup>9</sup> RT 818:26-819:2 (DeLeon).

## II. BACKGROUND

### A. The Facts of the San Bruno Explosion and the Procedural History of this Investigation Demonstrate PG&E's Recordkeeping Violations

The Commission began this investigation after Segment 180 of Line 132 in San Bruno exploded, causing injuries, deaths and the destruction of many homes. Yet, PG&E admits that it cannot find records for Segment 180 of Line 132.<sup>10</sup> This fact demonstrates well the practical necessity of good records and PG&E's records failure. A simple examination of PG&E's attempts to verify the essential pipeline characteristics of segment 180 of Line 132 exemplifies the deficient state of PG&E's records.

Following the pipeline rupture on September 9, 2010, PG&E represented that, according to its GIS system, segment 180 was a piece of 30 inch seamless, X42 grade pipe with 0.375 wall thickness.<sup>11</sup> After the accident, but before the NTSB's investigation was completed, the NTSB investigators determined that the information contained in PG&E's GIS database was incorrect.<sup>12</sup> According to the NTSB, some PG&E records showed that segment 180 was a 30 inch, DSAW, X 52 pipe with 0.375 wall thickness.<sup>13</sup> PG&E still cannot confirm these pipeline characteristics because it does not have the inspection report for the pipe actually used on Line 132.<sup>14</sup>

In truth, we now know that segment 180 contained six undocumented "pups." Each pup was approximately 3.5-4.7 feet long, and made of unknown pipe specification.<sup>15</sup> Several of the pups had partially welded longitudinal seams that left part of the seam unwelded<sup>16</sup> and several also had girth welds containing multiple weld defects.<sup>17</sup> PG&E agrees that these pups

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<sup>10</sup> PG&E-61 at p. 4-1 ("PG&E acknowledges that it cannot conclusively document the origin of the pipe used in the construction of Segment 180.").

<sup>11</sup> NTSB Report at p. 1.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.* at p. 27.

<sup>14</sup> Joint RT 536:11-17 (Harrison).

<sup>15</sup> NTSB Report at p. 27.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*



represented a dangerous condition, and asserts that “if PG&E had known about those pups, those would have been replaced in 1957.”<sup>18</sup> But because it had no records for this dangerous segment of pipeline, PG&E allowed the segment to remain in the ground for more than 50 years.<sup>19</sup>

The procedural record in this proceeding should be equally disturbing to the Commission. PG&E’s inability to produce important safety records in a timely manner is well documented. And even now, more than a year after this investigation was opened, PG&E has not been able to produce many key records, or even provide a cogent explanation for this deficiency.

### **III. LEGAL ISSUES OF GENERAL APPLICABILITY**

#### **A. PG&E’s Recordkeeping Violated Specific Gas Pipeline Safety Regulations and the General Obligation to Exercise Due Care**

The Commission opened this investigation to determine “(1) whether PG&E’s gas transmission pipeline recordkeeping and its knowledge of its own transmission gas system, and in particular the San Bruno pipeline, was deficient and unsafe, and (2) whether PG&E thereby violated the law and safety standards to which California regulated public utilities are subject.”<sup>20</sup> The Commission’s inquiry will examine “whether deficient recordkeeping may adversely affect and reduce safety in design, construction, operations, testing, maintenance, inspection, risk assessment, and pipe replacement” and “whether PG&E has violated Section 451 of the California Public Utilities Code, or any other applicable statute, law, general order, or Commission decision.”<sup>21</sup> If the Commission finds “that management practices and policies contributed towards recordkeeping violations of law that adversely affected safety, the Commission would have an obligation to consider the imposition of statutory penalties pursuant

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<sup>18</sup> Joint RT 830:17-19 (Zurcher).

<sup>19</sup> Joint RT at p. 592:4-14 (Harrison).

<sup>20</sup> OII at 12.

<sup>21</sup> *Id.*

to Section 2107 of the California Public Utilities Code, and other appropriate relief under the law.”

**B. PG&E Was Required to Maintain Accurate Records In Order to Reasonably Maintain the Safety of its Gas Pipelines Pursuant to Section 451.**

Section 451 requires every public utility to “furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities....as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.” The Commission has noted that “a utility which provides adequate service is in compliance with laws, regulations and public policies that govern public utility facilities and operations” and “adequate service encompasses all aspects of the utility’s service offering, including but not limited to safety, reliability, emergency response, public information services and customer service.”<sup>22</sup>

Maintaining adequate records is a key component of any reasonable utility program to maintain gas pipelines in a manner that promotes the safety, health, comfort and convenience of its patrons, employees and the public.<sup>23</sup> Adequate records are needed to identify the location, vintage and design of particular equipment in order to maintain and test them accordingly. Adequate records are needed to put into place appropriate limits on pipeline pressure, and to provide for appropriate and timely tests. Adequate records are needed to ensure timely identification and correction of potential safety issues.<sup>24</sup>

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<sup>22</sup> *Interim Order on Storm and Reliability Issues*, Decision No. 04-10-034, 2004 Cal. PUC LEXIS 506, at p. \*8.

<sup>23</sup> As a general matter, utilities are expected to keep records. State law provides that the Commission may inspect utility records. Public Utilities Code Sections 313-314; see also Public Utilities Code Sections 581-582, and 584. These statutes provide further evidence that the Legislature expects public utilities to maintain adequate records

<sup>24</sup> See, e.g., Joint RT at p. 737:12-22 (Zurcher); Joint RT at p. 778:6-11 (Zurcher); RT 1679:8-12 (Keas).

Section 451 does not provide “that there must be another statute or rule or order of the Commission that has been violated [in order] for the Commission to determine there has been a punishable violation.”<sup>25</sup> In other words, Section 451 establishes a separate and distinct basis for the Commission to enforce safety requirements.<sup>26</sup> The Commission has found previously that an unreasonable failure to maintain safety violates Section 451.<sup>27</sup> In *Carey vs. Pacific Gas and Electric Company*, the Commission found that PG&E violated Section 451 when it failed to adequately train fumigators to turn off gas before undertaking a fumigation.<sup>28</sup> In *Carey*, the Commission explained that the standard of reasonableness is well understood among utilities and provides a context for assessing whether a utility’s conduct violated the Section 451.<sup>29</sup>

### **1. Section 451 Imposes A Reasonableness Standard Upon Utility Conduct.**

As discussed above, in determining whether PG&E acted reasonably, the Commission’s inquiry is not limited to determining whether PG&E violated a specific rule or guideline. As the Commission explained when it adopted GO 112 in 1960,

No code of safety rules, no matter how carefully and well prepared, can be relied upon to guarantee complete freedom from accidents. Moreover, the promulgation of precautionary safety rules does not remove or minimize the primary obligation and responsibility of natural gas operators to provide safe service and facilities in their gas operations. Officers and employees of natural gas operators must continue to be ever conscious of the importance of safe operating practices and facilities and of their obligation to the public in that respect. . . . Public utilities serving or

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<sup>25</sup> PacBell Wireless v. PUC (2006) 140 Cal.App. 4th 718, 740.

<sup>26</sup> Id. at 743.

<sup>27</sup> *Carey vs. Pacific Gas and Electric Company*, 1999 Cal. PUC LEXIS 215; 85 CPUC 2d 682, 689 (1999); see also Decision 06-02-003 at 12, *CPUC Investigation of PG&E Mission Substation Fire and Electric Outage*, 2006 Cal. PUC LEXIS 68 (2006) (“Though the parties agree that PG&E has not violated any general orders, their settlement is a tacit recognition of the basic service requirements inherent in § 451. . . . [T]he settlement rationally structures shareholder funding of \$ 6.0 million in reliability projects and programs, as well as a payment to the General Fund, provides a clear explanation for each allocation, and prohibits recovery of these monies from ratepayers.”)

<sup>28</sup> *Carey vs. Pacific Gas and Electric Company*, 1999 Cal. PUC LEXIS 215; 85 CPUC 2d 682, 689 (1999).

<sup>29</sup> Id.

transmitting gas bear a great responsibility to the public respecting the safety of their facilities and operating practices.<sup>30</sup>

Instead, the Commission has required utilities to demonstrate that they acted reasonably, in addition to complying with minimum requirements in a rule or guideline:

[u]tilities are held to a standard of reasonableness based upon the facts that are known or should be known at the time. While this reasonableness standard can be clarified through the adoption of guidelines the utilities should be aware that guidelines are only advisory in nature and do not relieve the utility of its burden to show that its actions were reasonable in light of circumstances existent at the time. Whatever guidelines are in place, the utility will be required to demonstrate that its actions were reasonable . . . .<sup>31</sup>

For example, in assessing Southern California Edison’s (SCE) compliance with GO 95, GO 128 and GO 165, the Commission rejected SCE’s attempt to rely on its compliance with minimum clearance requirements in GO 165 to demonstrate that it acted reasonably:

“Edison has argued that if it has complied with the maintenance intervals of GO 165, it should be excused from liability for GO violations, for example, if a tree has grown enough since its last inspection that it is less than the minimum GO clearance from a power line. We do not agree. GO 165 sets minimum intervals for maintenance inspections. Circumstances may dictate that shorter intervals are required in particular cases. For example, an exceptionally wet or mild winter may result in faster vegetation growth. Simply complying with the minimum intervals set by our GO will not be sufficient to deal with that situation and the utility should be presumed to know that.”<sup>32</sup>

Thus, a utility always bears an obligation to ensure that its operations provide public safety, and PG&E’s conduct should be considered against the back drop of the Commission’s expectation that PG&E “employ good safety engineering practices to its potentially dangerous natural gas pipelines.”<sup>33</sup>

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<sup>30</sup> D. 61269, adopting GO 112, at p. 12, Findings 8 and 11 (emphasis added).

<sup>31</sup> D.90-09-088 p.22; see also D.05-08-037 at p. 9-10.

<sup>32</sup> D.04-04-065 at 16; see also D.97-03-070 at p.5 (In adopting inspection cycles for various types of distribution facilities and equipment, including wood poles, the Commission stated: “[i]n certain circumstances, it may be prudent to conduct more frequent inspections to assure high-quality service and safe operations. In those cases, the utilities are responsible to inspect facilities more frequently.”)

<sup>33</sup> OII at p. 10.

## **C. Applicable Pipeline Safety Laws, Regulations, and Standards**

### **1. The ASA B.31.1.8 Standard (1955)**

Natural gas pipeline safety standards have existed for many decades. As early as 1955 the American Society of Mechanical Engineers developed a code for Gas Transmission and Distribution Piping Systems (ASA B.31.1.8- 1955 standard).<sup>34</sup> PG&E has stated that it complied with ASA B.31.1.8 beginning in 1955.<sup>35</sup> This standard was intended to cover the design, fabrication, installation, inspection, testing, and the safety aspects of operation and maintenance of gas transmission and distribution systems.<sup>36</sup>

The ASA B.31.1.8 standard recognized the importance of proper recordkeeping. Under the standard, operators were required to pressure test newly installed transmission lines, and maintain records of those tests for the life of those pipelines.<sup>37</sup> Operators were required to have necessary records to calculate the appropriate MAOP for each pipeline segment based on the lowest of (i) the design pressure of the pipeline calculated using Barlow's equation, or (ii) the pressure obtained by dividing pressures recorded during a pressure test by certain class location factors.<sup>38</sup>

In order to calculate the design pressure of a pipeline using Barlow's equation, an operator must know the SMYS of the pipeline, the nominal wall thickness of the pipeline, the nominal outside diameter of the pipeline, the construction type or class location factor, the longitudinal joint factor of the pipeline, and the temperature derating factor of the pipeline.<sup>39</sup> This information is only available to the operator if it maintains careful records.

Even though the 1955 standard contained many specific requirements, the drafters recognized that it was not possible to prescribe a set of operating and maintenance procedures

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<sup>34</sup> PG&E-47 (ASA B.31.1.8 Standard).

<sup>35</sup> RT 1019: 9-14 (Phillips).

<sup>36</sup> PG&E-47 (ASA B.31.1.8) § 804.1.

<sup>37</sup> PG&E-47 §§ 841.411; 841.412; and 841.417.

<sup>38</sup> PG&E-47 § 841.412(d).

<sup>39</sup> PG&E-47 § 841.1.

that would be adequate from the standpoint of public safety in all cases.<sup>40</sup> The drafters thus recognized that a natural gas operator would need to “develop operating and maintenance procedures based on experience, knowledge of its facilities and conditions under which they are operated which will be adequate from the standpoint of public safety.”<sup>41</sup> One of the most basic requirements was to “keep records necessary to administer [a] plan properly.”<sup>42</sup>

## 2. General Order-112 (1961)

In 1960, the Commission, consistent with its obligation to ensure the safe service of natural gas, adopted General Order (GO) 112, which took effect in 1961.<sup>43</sup> The Commission found that, notwithstanding the existence of ASA B.31.1.8, the public interest required a general order relating to gas piping systems in order to promote and safeguard public health and safety and to promote the maintenance of adequate gas service to the public.<sup>44</sup> The Commission emphasized that public utilities serving or transmitting gas bear a great responsibility to the public related to the safety of their facilities and operating practices.<sup>45</sup> The Commission did not intend that compliance with GO 112 would relieve natural gas operators from complying with any statutory requirements.<sup>46</sup> Instead, in GO 112 the Commission recognized that the natural gas operator’s obligation to operate and maintain its facilities safely extends beyond any specific prescriptive approach. The Commission noted that “the promulgation of precautionary safety

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<sup>40</sup> PG&E-47 § 850.1 (“Because of the many variables, it is not possible to prescribe in a national code a set of operating and maintenance procedures that will be adequate from the standpoint of public safety in all cases without being burdensome and impractical.”).

<sup>41</sup> PG&E-47 § 850.2.

<sup>42</sup> PG&E-47 §§ 850.2, 850.3(c).

<sup>43</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 6.

<sup>44</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 11.

<sup>45</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 12, Finding 11.

<sup>46</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 1.

rules does not remove or minimize the primary obligation and responsibility of natural gas operators to provide safe service and facilities in their gas operations.”<sup>47</sup>

GO 112 imposed minimum requirements for design, construction, quality of materials, location, testing, operation and maintenance of facilities used in the transmission and distribution of gas to safeguard human life, health, property and public welfare and to provide for adequate service.<sup>48</sup> Natural gas operators in California were required to construct and operate gas transmission and distribution facilities in compliance with the ASA B.31.8. – 1958 standard.<sup>49</sup> This meant that natural gas operators were required to pressure test newly installed transmission lines, and maintain records of those tests for the life of those pipelines.<sup>50</sup> Like the ASA B.31.1.8-1955 standard, operators were required to have necessary records to calculate the appropriate MAOP for each pipeline.<sup>51</sup>

GO 112 added a new dimension to a natural gas operator’s record keeping obligations by explicitly requiring the utility “to maintain necessary records to establish compliance with the general order” and make such records “available for inspection at all times by the Commission or the Commission staff.”<sup>52</sup> Thus, at all times, PG&E should have been able to demonstrate that it had pressure tested pipelines installed after 1961, and that it had the necessary records to calculate the MAOP for all of its pipelines.

### **3. Federal Minimum Safety Regulations: 49 C.F.R. Part 192**

The Department of Transportation enacted federal safety regulations in 1970. These regulations required natural gas operators to pressure test all new transmission lines and keep

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<sup>47</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 12, Finding 8.

<sup>48</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p.1.

<sup>49</sup> PG&E-4 (D. 61269 Adopting General Order 112) section 107.1.

<sup>50</sup> *Id.* at GO 112 § 209.1 (ASME §§ 841.411, 841.417).

<sup>51</sup> *Id.* at GO 112 § 209 (Table 841.412(d)).

<sup>52</sup> PG&E-4 (D. 61269 Adopting General Order 112) § 301.1.

records of those pressure tests for the useful life of the pipeline.<sup>53</sup> As it was enacted in 1970, section 192.709 required PG&E to “keep records covering each leak discovered, repair made, transmission line break, leakage survey, line patrol, and inspection for as long as the segment of transmission line involved remains in service.”<sup>54</sup> PG&E’s witness Phillips stated that it was PG&E’s policy to retain every record identified in 192.517 and 192.709.<sup>55</sup>

Similar to the ASA B.31.1.8 standard and GO 112, section 192.619(a) also requires operators to calculate the MAOP of a pipeline by using the lowest pressure calculated by comparing the design pressure of the pipeline using Barlow’s equation, or the pressure obtained by dividing pressures recorded during a pressure test by certain class location factors. Section 192.619(a), however, includes a third means of determining the MAOP – based on the highest operating pressure reached in the previous five years. In addition, the federal regulations include section 192.619(c), which allows operators to set the MAOP of a pipeline based on highest actual operating pressure the pipe was subjected to from July 1, 1965 to July 1, 1970, if the pipeline is found to be in satisfactory condition considering its operating and maintenance history.

In California, the federal regulations were incorporated into law through GO 112-C,<sup>56</sup> the 1970 version of GO 112. GO 112-C also includes the recordkeeping requirement found in the previous iterations of the general order, which states that “the responsibility for the maintenance of necessary records to establish that compliance with these rules has been accomplished rests with the utility. Such records shall be available for inspection at all times by the Commission or the Commission staff.”<sup>57</sup>

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<sup>53</sup> 49 CFR § 192.517.

<sup>54</sup> PG&E-5 (D.78512 with General Order 112-C attached) § 192.709. (Section 192.709 requires pipeline operators to keep records of repairs to the pipeline for the life of the pipeline.)

<sup>55</sup> RT at p. 1054:15 (Phillips).

<sup>56</sup> D.78513 at p. 3.

<sup>57</sup> PG&E-5 (D.78512 with General Order 112-C attached) GO 112-C § 121.1.



**D. The Grandfather Clause Does Not Excuse Operators From Having Traceable, Verifiable And Complete Records**

In this proceeding, PG&E attempts to use the grandfather clause as a shield for its poor recordkeeping. For example, witness Zurcher states “PG&E’s well-publicized and wide-ranging efforts to locate strength test pressure and material records for its formerly grandfathered pipes should be evaluated against the historical de-emphasis of such records for purposes of establishing MAOP.”<sup>58</sup> This testimony implicitly acknowledges PG&E’s inability to produce many records, but offers no explanation for how that happened, instead suggesting that the records were not really important or expected to be kept.

While these witnesses hint at it, PG&E’s witness De Leon makes clear the view PG&E has advanced regarding its historical recordkeeping obligations:

“Q: If that operator in 1965 had performed a pressure test but in 1975 decided to destroy that record, would that be a violation of the federal regulations?”

A: I don’t – I don’t believe it would be. I don’t believe it would be because we said you – because the – the grandfather clause, as I read it, says you do not have to have any records before 1970. It doesn’t say that you can’t destroy anything. It leaves that silent. So I would say yes, they could destroy it since you don’t have to have it.”<sup>59</sup>

While this may be PG&E’s preferred view, this perspective is contrary to the Department of Transportation’s intent when it adopted the grandfather clause. As discussed more fully below, the testimony of San Francisco’s witness Gawronski explains that the grandfather clause was adopted with the full expectation that pipeline operators would have sufficient records to ensure the safe operations of its pipelines.<sup>60</sup> Nothing in the text or history of the grandfather provision provides an excuse for operators who lack adequate records.

The Commission has already soundly rejected PG&E’s view. In R.11-02-019, PG&E argued that “until the NTSB recommendations it had no obligation to maintain accurate and

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<sup>58</sup> PG&E-61 at p. 3-7 (Zurcher). Similarly, PG&E witness Harrison states “the decision to grandfather these existing facilities impacts our expectations about the quality of design basis and testing records for these pipes.” PG&E-61 at p. 4-2 (Harrison).

<sup>59</sup> RT 775:1-13 (De Leon).

<sup>60</sup> CCSF-4 (Testimony of John Gawronski) at p. 6-7.

accessible records of the components of its natural gas transmission system because the historical exemption provision of 49 CFR 192.619(c) did not require these records.”<sup>61</sup>

The Commission rejected this argument in the PSEP decision:

“We disagree with PG&E’s reading of the PHMSA regulations and want to disabuse PG&E and other California natural transmission gas system operators of the notion that superficial compliance with regulations is acceptable. We require our natural gas transmission system operators to exercise initiative and responsible safety engineering in all aspects of pipeline management. Simply because a regulation would not prohibit particular conduct does not excuse a natural gas system operator from recognizing that such conduct is not appropriate or safe under certain circumstances.”<sup>62</sup>

The Commission examined the text of section 192.619(c) and found that the grandfather clause “presupposes an engaged and evaluating system operator, questioning system operating parameters, examining records, and exercising professional engineering judgment.”<sup>63</sup> The Commission also found that to comply with this provision, PG&E would need to: (1) examine and determine that the pipeline segment is in satisfactory condition; (2) obtain and evaluate its operating history; (3) obtain and evaluate its maintenance history; and, (4) determine the highest actual operating pressure during the five year period.<sup>64</sup>

The Commission concluded that a natural gas operator could not comply with these requirements “without creating and preserving accurate and reliable system installation, operating, and maintenance records. Thus, we find that PG&E has failed to demonstrate that long-standing regulations excuse incomplete and inaccurate natural gas system record-keeping.”<sup>65</sup>

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<sup>61</sup> D.12-12-030 at p. 95.

<sup>62</sup> D.12-12-030 at p. 95.

<sup>63</sup> D.12-12-030 at p. 95.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.* at pp. 95-96.

In light of the foregoing, the Commission should give no weight to PG&E's arguments that the grandfather clause relieved PG&E of historical record keeping obligations or should affect the Commission's expectation as to what historical records PG&E should have retained.

**E. PG&E's Testimony That Missing Records Is Common In The Industry Does Not Excuse PG&E's Failure to Comply with Applicable Safety Laws**

Throughout its testimony PG&E attempts to veil its pipeline operations and maintenance deficiencies by suggesting that in the industry, it is common to be missing records. This investigation, however, is not concerned with whether industry practices for complying with safety laws are reasonable or constitute legal violations. The Commission's inquiry in this investigation is to "determine whether PG&E has violated section 451 of the California Public Utilities Code, or any other applicable statute, law, general order, or Commission decision."<sup>66</sup> Thus, even if PG&E had provided credible evidence establishing actual industry practices, something it has not done, such evidence would not excuse PG&E's failure to meet its obligations.

For example, Mr. Zurcher states that "many operators misplaced or discarded various underlying source materials reflecting pipeline characteristics or operating history after using such materials to establish a pipeline's MAOP."<sup>67</sup> He also states that "it is very common for pipeline operators to have missing or incomplete records for various pipelines or pipe segments in their respective systems, particularly for pipelines installed prior to 1970."<sup>68</sup> Mr. Zurcher provides a parade of examples of lost records<sup>69</sup>, yet agrees that his testimony on industry practices is irrelevant to the inquiry of whether PG&E complied with the applicable safety laws.

"Q: So just because Operators A, B, and C are violating the law doesn't mean that Operator D should also violate the law?"

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<sup>66</sup> Order Instituting Investigation at p. 11.

<sup>67</sup> PG&E-61 at p. 3-7 (Zurcher).

<sup>68</sup> PG&E-61 at p. 3-8 (Zurcher).

<sup>69</sup> Joint RT 707-708. As Mr. Zurcher puts it: "There's just a lot of stories."

A: Again, it's up to the operator, but I wouldn't use that as an excuse, if that's your question.

Q: So industry practices are not an excuse for violating the law; isn't that correct?

A: I would say that's true."<sup>70</sup>

As Mr. Zurcher characterized it, for natural gas operators, "Compliance with the regulations is the price of admission."<sup>71</sup> In this proceeding, the Commission must determine what PG&E did, not what other operators have done. Thus, the Commission should disregard PG&E's testimony on the conduct of other operators.

The Commission has established that an assessment of whether a utility acted reasonably extends beyond determining whether the utility's actions were consistent with those of other utilities. For example, in assessing the reasonableness of Southern California Edison's (SCE) maintenance of the Mohave Coal Plan, the Commission rejected SCE's contention that standard industry practice is determinative of whether a utility has acted reasonably. The Commission explained "[e]vidence of accepted industry practices will often be relevant to a reasonableness inquiry, but compliance with such practices will not relieve the utility of the burden of showing that its conduct was reasonable."<sup>72</sup>

#### **IV. OTHER ISSUES OF GENERAL APPLICABILITY**

##### **A. PG&E's Witnesses Lack Credibility**

An expert witness's opinion "is only as good as the facts and reasons on which it is based."<sup>73</sup> Expert testimony is limited to matters that are "sufficiently beyond common experience that the opinion of an expert would assist the trier of fact."<sup>74</sup> PG&E's testimony on

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<sup>70</sup> Joint RT 715:8-17 (Zurcher).

<sup>71</sup> Joint RT 752:2-3 (Zurcher).

<sup>72</sup> D.94-03-048 at, *Investigation on the Commission's Own Motion of the Maintenance and Operating Practices, Safety Standards and the Reasonableness of Costs Incurred From the Mohave Coal Plant Accident, 1994 Cal. PUC LEXIS 216; 53 CPUC2d 452 (1994)*. See e.g. D.90-09-088 p.22; see also D.11-10-002 p.11, footnote 2.

<sup>73</sup> *Howard v. Owens Corning*, (1999) 72 Cal. App. 4th 621, 633.

<sup>74</sup> Cal. Evid. Code § 801.

recordkeeping requirements in this proceeding is not credible and therefore not useful to the Commission.

PG&E's witness DeLeon explained that, in his experience as an engineer, he did not believe that record keeping was an integral part of the operation and maintenance of pipelines.<sup>75</sup> Also, in his view, regulators have little to no role in enforcing pipelines safety. Mr. De Leon believes that following the enactment of GO 112, an operator like PG&E could "do whatever you wish to do with whatever you have" in terms of records created prior to 1961.<sup>76</sup> Mr. De Leon further believes that following the promulgation of the grandfather clause, operators could destroy pipeline documents created prior to 1970 without violating the federal regulations.<sup>77</sup> In fact, in the event that an auditor discovered a highly unsafe condition, but could not frame the unsafe condition within a particular regulation, Mr. De Leon believes that the auditor would be powerless to order the pipeline operator to correct the unsafe condition.<sup>78</sup>

Mr. DeLeon's testimony exhibits no knowledge of pipeline safety regulations<sup>79</sup> or utility obligations to the public. The Commission, therefore, should disregard this testimony.

Similarly lacking in credibility, PG&E witness Zurcher stated that he did not agree that pipeline records were useful for determining the condition of a pipeline.<sup>80</sup> (This directly contradicts other testimony by Mr. Zurcher agreeing that records are useful.<sup>81</sup>) Mr. Zurcher further disparaged the need to keep records by asserting that records were not needed to

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<sup>75</sup> RT 818:26-819:2 (De Leon).

<sup>76</sup> RT 809:13-15 (De Leon).

<sup>77</sup> RT 775:1-13 (De Leon).

<sup>78</sup> RT 796:18-27 (De Leon).

<sup>79</sup> For example, even though Mr. De Leon sponsored testimony regarding the relevance of the ASME B.31 standard and whether it was appropriate to determine violations of law, he admitted that he does not understand the B.31.8 standard. RT 7612:17-762:2 (De Leon).

A: No, because we never referenced. It doesn't make any sense to use it in an independent basis because we never referenced."

<sup>80</sup> Joint RT 733:8-12 (Zurcher).

<sup>81</sup> Joint RT at p. 737:12-22 (Zurcher); Joint RT at p. 778:6-11 (Zurcher).

demonstrate compliance with regulations requiring natural gas pipeline operators to calculate and determine the proper MAOP, pipeline operators only need to provide the actual number.

“ALJ Yip Kikugawa: I’m sorry. So you’re saying if someone from the Commission had come in in 1961 or 1962 after all of these rules came into effect and said this pipe segment shows MAOP of 390, did you calculate – can you show me that you calculated it, the response could be, well, I did it and you don’t need to see anything else to prove that I did it? I’m just supposed to take your assurance that, well, I did it is sufficient?”

A: Yes, your Honor. That’s my opinion.”<sup>82</sup>

If taken as true, the testimony of Mssrs. De Leon and Zurcher demonstrates that officers and employees of PG&E have not been “ever conscious of the importance of safe operating practices and facilities and of their obligation to the public in that respect,”<sup>83</sup> and that PG&E has not lived up to the Commission’s expectation that it “employ good safety engineering practices to its potentially dangerous natural gas pipelines.”<sup>84</sup> Since 1961, natural gas pipelines operators in California explicitly have been required “to maintain necessary records to establish compliance with the general order. Such records shall be available for inspection at all times by the Commission or the Commission staff.”<sup>85</sup> Moreover, the prudence of keeping records in the gas transmission business cannot be disputed even by these witnesses.

PG&E’s witness for its Integrity Management Program offered a similarly loose understanding of what records are required as part of its Integrity Management Program. Pursuant to section 192.947(d), PG&E is required to “maintain for the useful life of the pipeline... (d) documents to support any decision, analysis and process developed and used to implement and evaluate each element of the baseline assessment plan and integrity management program.” Despite the large number of documents that PG&E should have kept in order to comply with this requirement, Ms. Keas asserted that under this section “operators need to define what they think that their documentation requirements should be.” In other words, like PG&E’s

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<sup>82</sup> RT 1816:16-28 (Zurcher); see also RT 1827:6-12 (Zurcher).

<sup>83</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 12, Finding 8.

<sup>84</sup> OII at p. 10.

<sup>85</sup> See e.g. PG&E-5 (D.78512 with General Order 112-C attached) GO 112-C § 121.1.

other witnesses, she believes that PG&E can decide what records are necessary to demonstrate compliance with the applicable natural gas safety laws rather than provide the broad array of records specified.

In a moment of clarity Mr. Zurcher's testimony revealed the true purpose of PG&E's testimony.

“there was just all those missing records. We tried to cover it up as – bad word, sorry. We tried to recreate a representation of those records in the best way that we could.”<sup>86</sup>

This is exactly what PG&E has attempted to do in this proceeding. PG&E is trying to “cover up” its historic record keeping deficiencies by sponsoring implausible testimony that attempts to “recreate a representation” of PG&E's practices and the record keeping requirements. The Commission must look past PG&E's attempts to “cover up” its record keeping problems. Thus, the Commission should accord little weight to PG&E's testimony and find that PG&E's testimony is simply after-the-fact justifications for the company's poor record keeping.

**V. ALLEGED VIOLATIONS PREDICATED ON THE REPORTS AND TESTIMONY OF MARGARET FELTS**

- A. Alleged Records Violations relating to Line 132, Segment 180, San Bruno Incident**
- B. Alleged General Records Violations for all Transmission Lines including Line132**

**VI. ALLEGED VIOLATIONS PREDICATED ON THE REPORTS AND TESTIMONY OF DR. PAUL DULLER AND ALISON NORTH**

- A. Alleged General Records Management Violations**
- B. Alleged Records Retention Violations**
- C. Other Alleged Safety/Pipeline Integrity Violations**

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<sup>86</sup> Joint RT 710:12-17 (Zurcher).

## VII. ALLEGATIONS RAISED BY CCSF TESTIMONY

### A. The Grandfather Clause Does Not Excuse Poor Recordkeeping.

As discussed above, since the San Bruno explosion, PG&E has consistently attempted to exculpate its poor recordkeeping by asserting that the grandfather clause “impacts our expectations about the quality of design basis and testing records for these pipelines.”<sup>87</sup> In PG&E’s view, even if it had pressure test records for pipelines installed before the federal regulations were enacted, “I don’t think they would be violating Part 192 by destroying [those records]. Part 192 says you don’t have to have them.”<sup>88</sup> This is clearly false for several reasons.

First, setting the MAOP for a pipeline is distinct from the recordkeeping obligations associated with the pipeline. In fact, PG&E’s witness who performed the MAOP validation in 1974 agreed that operating a pipeline pursuant to the grandfather clause does not excuse the recordkeeping obligations associated with those pipelines.<sup>89</sup>

Second, when the Department of Transportation (DOT) adopted the grandfather clause, it assumed that operators would have pipeline design, construction, operating history, material and component records and pressure test records to validate the integrity of the pipeline to at least 50 psi above the MAOP of the line.<sup>90</sup>

In 1968, the DOT proposed a draft rule that would have required the MAOP to be determined by the lower of either (1) the design pressure in the weakest element in the pipeline system, or (2) the pressure obtained by dividing the pressure to which the pipeline was tested after construction by the appropriate class location factor.<sup>91</sup>

The DOT, however, recognized “since some pipelines have been operated above 72 percent of specified minimum yield strength (the highest design stress allowed by Part 192) and

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<sup>87</sup> PG&E-61 at p. 4-2 (Harrison).

<sup>88</sup> RT 739:19-21 (DeLeon).

<sup>89</sup> RT 1072:2-15 (Phillips) ([The grandfather clause] has nothing to do with records. It’s how you establish the MAOP).

<sup>90</sup> CCSF-4 (Exhibit 1: 35 Federal Register 13248 (August 19, 1970)).

<sup>91</sup> *Id.*



since many were tested to no more than 50 pounds above maximum allowable operating pressure, these proposed regulations would have required a reduction of operating pressures” for those pipelines to comply with the new regulations.<sup>92</sup>

After the DOT proposed the draft regulations, the Federal Power Commission submitted a letter stating that the proposed new requirements would require operators to reduce the pressure on “thousands of miles” of pipeline installed between 1935-1951 because many pipelines installed during those years in compliance with the then existing codes, were only tested to 50 psi above the proposed maximum operating pressure.<sup>93</sup> The Federal Power Commission stated that it had “reviewed the operating record of the interstate pipeline companies and found no evidence that would indicate a material increase in safety would result from requiring wholesale reductions in the pressure of existing pipelines which have proven capable of withstanding present operating pressures through actual operation.”<sup>94</sup> The Federal Power Commission concluded “[i]f it is the intention of the Office of Pipeline Safety to require the retesting of all existing pipelines to the higher standards proposed ... it is our suggestion that this section be revised to permit the development of an orderly testing program that will allow the jurisdictional pipeline companies the necessary time to obtain from this Commission such certificate authorizations as may be necessary.”<sup>95</sup>

In response, the DOT stated “in view of the statements made by the Federal Power Commission, and the fact that this Department does not now have enough information to determine that existing operating pressures are unsafe, a “grandfather” clause has been included in the final rule to permit continued operation of pipelines at the highest pressure to which the pipeline had been subjected during the 5 years preceding July 1, 1970.”

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<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

These statements identify the principles underlying the DOT's safety regulations approach: first, that when the DOT enacted the regulations, it expected operators to have detailed records of pipe and components to either be able to calculate MAOP based on the weakest element in the pipeline system, or that operators would have pressure test records to validate the MAOP.<sup>96</sup>

Second, that the DOT allowed grandfathered pressures because it assumed the pipelines that would operate pursuant to the grandfather clause would primarily be those pipelines that:

- had been installed from 1935 to 1951; and
- either applied lower class location design factors than the industry applied since 1952 up until the 1968, or
- only been tested to 50 psi above the MAOP.<sup>97</sup>

In other words, the DOT assumed that operators would have pipeline design, construction, operating history, material and component records and pressure test records to validate the integrity of the pipeline to at least 50 psi above the MAOP of the line.<sup>98</sup> Older pipelines installed before 1935 would be limited to actual pressures experienced within a more recent 5 year defined period (1965-70).<sup>99</sup> The DOT reasoned that this would prevent an operator from using a theoretical maximum operating pressure which may have been determined under some formula used 20, 30, or 40 years ago (prior to 1970).<sup>100</sup>

These facts are relevant because the grandfather provision is based on the assumption that an operator had records of its pipeline materials as well as pressure test records to validate the historic MAOP, and the fact that the DOT could not determine that the historic pressures were unsafe.<sup>101</sup> If the operators lacked pressure test records and the operator could not determine the

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<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> *Id.*

<sup>99</sup> *Id.*

<sup>100</sup> *Id.*

<sup>101</sup> CCSF-4 (Testimony of John Gawronski) at p. 8.

MAOP based on the weakest element, it is doubtful that the DOT would have considered the historic operating pressure to be safe.<sup>102</sup>

**B. In 1975, PG&E was able to verify the MAOP of its pipelines and did not use the grandfather clause for the majority of its pipelines.**

Despite PG&E's arguments that the grandfather clause was intended to excuse operators without records necessary to calculate the MAOP of their pipelines, PG&E employee Phillips stated that in 1975, PG&E first choice was not to establish MAOP by affidavit under the grandfather clause.<sup>103</sup>

Q: So it was PG&E's practice to establish MAOP based on 619(a)?

A: It wasn't its practice. It was the code that we followed."<sup>104</sup>

As Mr. Phillips described, in 1974-1975, he validated the MAOP for all of PG&E's pipelines pursuant to section 192.619(a). In order to validate the MAOP under this section, PG&E was required to operate its pipelines at the lowest pressure based on: (1) the design pressure, (2) the pressure obtained by dividing pressure test records by certain class location factors, or (3) the highest actual operating pressure to which the segments was operated from July 1, 1965 to July 1, 1970.<sup>105</sup>

Records are clearly necessary to perform these calculations. In order to perform this validation, Mr. Phillips needed to be able to refer to records such as pressure charts, existing pressure test records, and records of the physical design characteristics of these pipelines in order

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<sup>102</sup> CCSF-4 (Testimony of John Gawronski) at p. 8.

<sup>103</sup> RT 1176:191177:9 (Phillips).

<sup>104</sup> RT 1166:6-9 (Phillips).

<sup>105</sup> 49 C.F.R. §192.619(a).

to calculate the design pressure of the pipeline.<sup>106</sup> Records necessary to calculate the design pressure of a pipeline include pipe specification, purchase order, mill certifications.<sup>107</sup>

PG&E's witness agreed that in order to calculate the design pressure for a pipeline it is necessary to have records of all the components on the pipeline.<sup>108</sup> Although PG&E's witness did not actually calculate the design pressures for each pipeline himself, he asserted that the design pressures would have been shown in PG&E's records in gas system design.<sup>109</sup>

These are the same calculations PG&E was required to perform under the ASA B.31.1.8-1955 standard, and previous iterations of GO 112. As Mr. Phillips stated "We were required to have the records under GO 112-A and B, yes, prior to GO 112-C."<sup>110</sup> Apparently, in 1975, this information pertaining to the historical MAOP and design pressures was available to PG&E in its Gas Systems Design Department.<sup>111</sup> In fact, PG&E's witness asserted that it was able to perform the 1975 MAOP validation for almost all of its pipelines. In Mr. Phillips' opinion, in 1975 PG&E set the MAOP pursuant to affidavits for only 11 out of 340 segments in 1975.<sup>112</sup>

If PG&E calculated the MAOP of its pipelines pursuant to 192.619(a), as indicated by Phillips, then it would not have needed to use the grandfather clause. PG&E's expert on historic record keeping practices, James Howe, agrees that the grandfather clause is intended to be merely a backup in the event that an operator cannot comply with section 192.619(a).<sup>113</sup>

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<sup>106</sup> CCSF-3 (March 15, 2011 Declaration of Steven H. Phillips in R. 11-02-019); RT 1124:7-15 (Phillips) ("When I did my MAOP study in '74 and '75, almost 97 percent of the MAOPs for those lines were established either by a five year chart or log that I had by an uprating or by a hydrotest that qualified with those MAOPs under Title 49 Part 192. There were 11 segments out of those 340 back in '74, '75 that we used affidavits for.")

<sup>107</sup> RT 1762: 10-28 (Zurcher).

<sup>108</sup> RT at p. 1162:28-1163:2 (Phillips).

<sup>109</sup> RT at p. n1161:23-26 (Phillips).

<sup>110</sup> RT at p. 1071:16-18 (Phillips).

<sup>111</sup> RT at p. n1161:23-26 (Phillips).

<sup>112</sup> RT at p. 1120:1-10 (Phillips).

<sup>113</sup> RT at p. 1300:26-1301:3 (Howe)

Q: If Mr. Phillips had said that PG&E was using 619(a) to calculate its MAOP, it would not need to use 619(c), in your opinion?

A: Yeah, that seems correct.<sup>114</sup>

This is simply further proof that PG&E's arguments regarding the purpose and intent of the grandfather clause are intended to confuse the Commission's inquiry into its historic record keeping deficiencies.

**C. Since 2011 PG&E Has Struggled To Verify The MAOP of Its Pipelines Because It Has Lost, Destroyed, Or Never Created Important Pipeline Records**

In January 2011, following the NTSB's discovery that segment 180 of Line 132 was comprised of five pups made of unknown pipe specification, the NTSB issued several urgent recommendations to PG&E. Two of the recommendations urged PG&E to validate the MAOP of its pipelines in high consequence areas using traceable, verifiable and complete pressure test records, or determine the MAOP based on the weakest section of pipeline or component.<sup>115</sup>

In March 2012, on cross-examination, PG&E's witness stated that 50-70% of the high consequence area pipelines with an MAOP established under the grandfather clause had their operating history set pursuant to an affidavit.<sup>116</sup> In this proceeding, PG&E did not deny that it lost the pressure charts and terminal operating logs establishing the historical MAOP of these pipelines since they were established in 1974-1975.<sup>117</sup> In other words, when PG&E went back to look for the charts and logs used in the original 1974-1975 study, it was unable to find them.<sup>118</sup> PG&E admits that the most likely cause is that those records are misplaced or missing.<sup>119</sup> This is in stark contrast to the testimony of PG&E's witness that he was able to

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<sup>114</sup> RT at p. 1301:4-8 (Howe).

<sup>115</sup> NTSB recommendations P-10-2, P-10-3

<sup>116</sup> CCSF-4 (Testimony of John Gawronski at p. 8.)

<sup>117</sup> PG&E-61 at p. 4-9 ("At the time of the March 15, 2011 filing, PG&E's search for operating pressure records from 1965-1970 revealed that many of the underlying records that had been reviewed in 1973-1975 for grandfathered pipelines were no longer available).

<sup>118</sup> RT 1175:5-10 (Phillips).

<sup>119</sup> RT 1179:7-12 (Phillips).

verify the MAOP for all but 11 of 340 pipeline segments using pressure tests, pressure charts, or calculated design pressure.<sup>120</sup> PG&E's difficulties in being able to validate the MAOP of its pipelines is likely due to the fact that it has not kept the records from its mill tests.<sup>121</sup>

In addition, based on memoranda from a former PG&E employee, as early as 1992, PG&E was not been keeping or creating all relevant pipeline records.<sup>122</sup> In these memoranda, the former employee describes how recent reorganizations at PG&E led to pipeline records being undervalued and discarded.<sup>123</sup> The memoranda specifically mentions that pipeline history files, strength test and pressure reports, mapping functions and pipeline plat sheets as being no longer kept current "due to the extensive backlog and the perceived lack of importance of the data reflected in the drawings."<sup>124</sup> The memoranda warns that "failure to maintain the data formally on the Plat sheets and the decision not to general Plat sheets for new work may be costly to PG&E in the future and it may be difficult to defend the non-existence of the data."<sup>125</sup> The as-builts would have contained "a compendium of hydrotests, land ownership and right-of-way documents, construction details for crossing and plan and profile data."<sup>126</sup> These as-builts could have contained much of the relevant information PG&E is now seeking to recreate through its MAOP validation efforts.

Based on the memoranda, PG&E should have been aware of its recordkeeping deficiencies. It is not clear from the record that PG&E took any action in response to the memoranda and it appears that PG&E's officers and employees of PG&E have not been "ever conscious of the importance of safe operating practices and facilities and of their obligation to

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<sup>120</sup> RT 1124:7-15 (Phillips).

<sup>121</sup> Joint RT 779:2-10 (Zurcher).

<sup>122</sup> ALJ June 20, 2011 Order Entering Memoranda From Former PG&E Employee into Record, Attachment A.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*

<sup>126</sup> *Id.*

the public in that respect.”<sup>127</sup> This is a clear example where PG&E’s “management practices and policies contributed towards recordkeeping violations that adversely affected safety.”<sup>128</sup> PG&E was required to keep these documents in order to fulfill its “responsibility for the maintenance of necessary records to establish that compliance with these rules has been accomplished.”<sup>129</sup>

#### **D. PG&E’s Poor Recordkeeping Has Negatively Affected Its Transmission Integrity Management Program**

PG&E uses its GIS database as the primary source of information for its TIMP.<sup>130</sup> This database, however, contains inaccuracies.<sup>131</sup> In fact, PG&E is in the midst of developing a new GIS 3.0 database, referred to as Intrepid.<sup>132</sup> The GIS 3.0 database is being created in response to the NTSB’s recommendations and the Commission’s directive that PG&E validate the MAOP for its pipelines using traceable, verifiable, and complete records.<sup>133</sup> In the future, PG&E will be able to refer to Intrepid to locate all information necessary to validate the MAOP of its pipelines, such as pressure tests records, and all necessary records to calculate design pressure.<sup>134</sup> In building this new database, however, PG&E will not use any of the information related to pipeline characteristics that is located in its GIS 2.0 database.<sup>135</sup> RT 999:23-1000:5 (Singh).

Given that PG&E is endeavoring to entirely re-create its database of pipeline records, and is not using the information available in GIS 2.0 in its GIS 3.0 database, it is reasonable to conclude that PG&E’s GIS 2.0 is not reliable for use in PG&E’s day-to-day gas operations. In

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<sup>127</sup> PG&E-4 (D. 61269 Adopting General Order 112) at p. 12, Finding 8

<sup>128</sup> OII at p. 12.

<sup>129</sup> RT 1062:26-1063:5; 1064:9-24; (Phillips).

<sup>130</sup> PG&E-61 at p. 3-54 (Keas).

<sup>131</sup> RT 1000:13-15 (Singh).

<sup>132</sup> RT 1000:16-22 (Singh).

<sup>133</sup> RT 847:10-16 (Singh).

<sup>134</sup> RT 1000:16-22 (Singh).

<sup>135</sup> RT 999:23-1000:5 (Singh).

addition, the TIMP regulations require that natural gas operators check the data for accuracy.<sup>136</sup> Because PG&E uses the GIS 2.0 database as the primary source of information for its TIMP, and PG&E has admitted that its GIS 2.0 database contains inaccuracies, it is reasonable to conclude that PG&E was not making the best engineering decisions supported by the best available data.

**E. PG&E Failed To Consider A 1989 Memorandum Evidencing A Longitudinal Seam Defect on Line 132**

One example of where PG&E's poor record keeping negatively affected its TIMP is with regards to its consideration of a 1989 discussing a longitudinal seam defect on Line 132. If PG&E's GIS system had accurately reflected the pipeline specifications PG&E asserts were contained in its job file for segment 180, and PG&E had faithfully complied with the Integrity Management rules, then it is likely that PG&E would have examined segment 180 for similar longitudinal defects prior to September 2010.

To comply with federal safety regulations, PG&E needed to gather and integrate existing data and information on the entire pipeline that could be relevant to covered segments, so that it could evaluate the potential risks to the pipelines.<sup>137</sup> Basic elements of proper data integration and evaluation include: storage, retrieval, granularity, collection, aggregation, and integration.<sup>138</sup> Data integration consists of more than simply putting several types of information into a single location. The most important aspect of data integration is the analysis of aggregated data in order to discern integrity threats and risks that would not otherwise be observed from independently reviewing the various individual data elements.<sup>139</sup> In other words, relevant records should be accessible.

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<sup>136</sup> CCSF-10: (PHMSA Gas TIMP Protocol C.02 – Data Gathering and Integration).

<sup>137</sup> 49 C.F.R. § 192.917(b).

<sup>138</sup> CCSF-4 (Testimony of John Gawronski) at p. 12.

<sup>139</sup> *Id.*



Eight months after the NTSB requested all leak and repair information for Line 132, PG&E produced a 1988 inspection report<sup>140</sup> stating that Line 132 had experienced a longitudinal seam leak at mile post 30.44, approximately 8.78 miles south of the rupture.<sup>141</sup> This report included a March 1, 1989 memorandum from PG&E's Technological and Ecological Services stating that a 30" section of Line 132 had been "removed for failure analysis because of a pinhole leak in the longitudinal seam weld."<sup>142</sup> The memorandum states that "[o]verall, the x-ray inspection showed the weld to be of low quality, containing shrinkage cracks and voids, lack of fusion, and inclusions. Although the actual leak could not be found, it is likely that it was related to one of the weld defects."<sup>143</sup> The memorandum also states that "the cracks are pre-service defects, i.e. they are from the original manufacturing of the pipe joint."<sup>144</sup>

The leak identified constitutes a failure under TIMP regulations.<sup>145</sup> Moreover, the document shows that PG&E should have been aware of both potential manufacturing and construction defects present on Line 132.<sup>146</sup> In response to this document, PG&E should have evaluated all similar pipeline for potentially unstable manufacturing and construction defects.<sup>147</sup>

The segment with the identified longitudinal seam defect was 0.375 inch wall thickness, X52, 30" DSAW pipe, installed in 1948.<sup>148</sup> PG&E admits that the pipe characteristics of this segment are essentially identical to the pipe characteristics of segment 180 as identified in its job files.<sup>149</sup> Because the cracks were noted as being pre-service defects, PG&E should have been

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<sup>140</sup> PG&E-65 (Ex 3-17: 1989 TES Memorandum).

<sup>141</sup> NTSB Report at p. 38 and fn 61.

<sup>142</sup> PG&E-65 (Ex 3-17: 1989 TES Memorandum).

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> CCSF-4 at p. 10.

<sup>146</sup> *Id.*

<sup>147</sup> *Id.*

<sup>148</sup> PG&E-65 (Ex 3-17: 1989 TES Memorandum).

<sup>149</sup> Joint Evidentiary Hearings of I.11-02-016 and I.12-01-007, at p. 567:23-27 (Harrison).

concerned that its quality control was deficient at the time the segment was installed in 1948.<sup>150</sup> PG&E should have known about this defect and reviewed its records for other similar pipe segments installed at approximately the same time to determine the extent of the quality control issue.<sup>151</sup>

PG&E, however, was unaware of this document. The NTSB found that “until May 6, 2011, the PG&E GIS had listed the cause of the leak as ‘unknown.’”<sup>152</sup> Following the discovery of the memorandum, PG&E updated its database to indicate the pipe had been replaced due to a longitudinal defect.<sup>153</sup> PG&E’s testimony indirectly concedes that it did not consider this report in its TIMP and PG&E provided no evidence that these reports were considered in its TIMP.<sup>154</sup>

The 1988 document should have been reviewed as part of PG&E’s TIMP. Given the similarities to characteristics of segment 180 and the fact that the segment with the longitudinal defect was on the same line, these reports are clearly “existing data and information on the entire pipeline that could be relevant to the covered segment”,<sup>155</sup> and PG&E should have considered these reports as part of its TIMP. PG&E’s failure to consider this report illustrates how PG&E’s poor recordkeeping negatively affected its TIMP, and demonstrates that PG&E did not perform the proper data gathering and integration required.<sup>156</sup> By failing to consider this document in its TIMP, PG&E violated 49 C.F.R. § 192.917(b).

In its testimony, PG&E disputes the significance of this and other documents by asserting that they are irrelevant to its TIMP. When asked whether he knew if PG&E had considered these

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<sup>150</sup> CCSF-4 at p. 10.

<sup>151</sup> *Id.*

<sup>152</sup> NTSB Report at p. 38.

<sup>153</sup> *Id.*

<sup>154</sup> Joint 34 (PG&E Response to Data Request CCSF 001-Q05 in I.12.01-007 (“Mr. Zurcher has no personal basis for a conclusion as to whether PG&E was or was not aware of the referenced reports at the time it developed its TIMP.”)).

<sup>155</sup> 49 C.F.R. § 192.917(b).

<sup>156</sup> CCSF-4 at p. 10.

weld reports, PG&E witness Zurcher conceded that he did not know.<sup>157</sup> Instead, he asserted that PG&E did not need to consider 1988 weld report because it was irrelevant to PG&E's TIMP.<sup>158</sup>

“Q: Shouldn't the operator at least document the consideration and if it chose not to act on it, explain why?”

A: Well, you would like to rule out the consideration, you know, based on value. I tend to do it the other way. I only look at those reports that are of value. If they're not of value to me, they're in a different bucket and I wouldn't even consider them.”<sup>159</sup>

In essence, Mr. Zurcher's analysis begins with the conclusion that the reports PG&E chose not to consider are not relevant, and on that basis determines PG&E was not required to consider these reports, or even to document why it did not need to consider them. This conclusion flies in the face of the purpose and intent of the TIMP rules. For stable and time independent threats (such as manufacturing and construction defects), ASME B.31.8S states that an operator's data collection, review and analysis, should consider earlier data.<sup>160</sup> Operators are required to consider information on the operation, maintenance, patrolling design, operating history, and specific failures and concerns that are unique to each system and segment will be needed.<sup>161</sup> The leak identified in this report goes directly to the maintenance, design and specific failure on Line 132. Despite his instance that PG&E did not need to consider this document, Mr. Zurcher concedes that under the TIMP rules, PG&E must have documented proof that an operator meets all the requirements of TIMP, “including data collection, review and analysis.”<sup>162</sup>

This assertion is also undermined by section 101.4 of General Order 112-E, which requires that “The utilities shall maintain the necessary records to ensure compliance with these rules and the Federal Pipeline Safety Regulations, 49 CFR, that are applicable. Such records

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<sup>157</sup> Joint RT 779:17-21 (Zurcher).

<sup>158</sup> Joint RT 779:22-28 (Zurcher).

<sup>159</sup> Joint RT 780:23-781:5 (Zurcher).

<sup>160</sup> Joint 28 (ASME B.31.8S § 4.4 (“Stable and time-independent threats do not have implied time dependence, so earlier data is applicable.”))

<sup>161</sup> 49 C.F.R. section 192.917(b); See also Ex. Joint-28 (ASME B.31.8S section 2.3.2).

<sup>162</sup> Joint RT 666:4-24 (Zurcher).

shall be available for inspection at all times by the Commission or Commission Staff.”<sup>163</sup> If an operator works from the conclusion that the records are not relevant and does not document that threshold consideration, it is impossible for the operator to prove compliance with General Order 112-E or any the data gathering and integration requirements of 49 C.F.R. Subpart O.

**F. At Best, PG&E Failed to Comply With The Management Of Change Provisions of Section 192.909(a)**

As part of its investigation, the NTSB asked PG&E to “[p]lease provide a listing of all other pipelines, along with corresponding dates, SCADA printouts, and pressure charts, where PG&E has applied its practice of reestablishing MAOP every 5 years as PG&E has indicated it has done on Line 132. Please provide copies of all policies, standards, procedures, etc. related to PG&E’s practice of reestablishing MAOP on its pipelines.”<sup>164</sup>

In response, PG&E asserted that it spiked the pressures on its lines “to avoid [pressure testing] and any potential customer curtailments that may result,” and therefore “PG&E has operated, within the applicable five-year period, some of its pipelines that would be difficult to take out of service at the maximum pressure experienced during the preceding five-year period in order to meet peak demand and preserve the line’s operational flexibility.”<sup>165</sup> PG&E also attached a copy of Risk Management Instruction, (“RMI-06”) “which describes PG&E’s process to increase pressure in certain transmission lines every five years for these operational purposes.”<sup>166</sup> That policy states “to keep from continually losing operating pressure on pipelines that have a potential long seam manufacturing threat, PG&E has made a decision to only reprioritize those pipeline segments that exceeded the historic 5 year MOP plus 10% of the historic 5 year MOP.”<sup>167</sup>

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<sup>163</sup> General Order 112-E § 101.4.

<sup>164</sup> CCSF-4 (Exhibit 3: PG&E’s Amended Data Response, NTSB Exhibit 2-AI of the San Bruno Investigation (Docket No. SA-534)).

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

<sup>167</sup> *Id.*

Following the NTSB hearings in March 2011, PG&E submitted a letter to the NTSB and the CPUC explaining that it had provided the Commission and the NTSB with an incorrect version of RMI-06. PG&E asserts that the version of RMI-06 which it submitted to the NTSB included the cover sheet approval RMI-06 revision 0, but included the body and text of an unauthorized version of RMI-06, revision 1 (referred to below as RMI-06 draft revision 1). PG&E asserts that “we have not identified a cover sheet approval for this RMI-06 revision 1, and we have no indication that it was ever approved.”<sup>168</sup> With the letter, PG&E submitted a new version of RMI-06 revision 1, which it claims is the true version of this document.<sup>169</sup> In other words, PG&E submitted what it later claimed was a draft engineering policy to federal investigators regarding its controversial practice of periodically spiking the pressures of its pipelines.

This confusion surrounding draft procedures and misplaced cover sheets demonstrates that PG&E’s control over important Integrity Management protocols is lacking. The procedure at issue concerned PG&E’s practice of raising the pressure on its pipelines. PG&E’s difficulties in providing prompt and accurate answers regarding its procedures demonstrates that PG&E has failed to comply with the TIMP management of change requirements.

To comply with the TIMP requirements, PG&E must document any change to its program and the reasons for the change before implementing the change.<sup>170</sup> This means that earlier revisions to the program should be included in document files as archived information, and operators should include evidence as to why any program documents have been revised and the effective date of the revisions.<sup>171</sup> If no documentation exists to describe and justify the change, then the operator is not properly managing the change.<sup>172</sup> Procedures governing

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<sup>168</sup> *Id.*

<sup>169</sup> CCSF-4 (Exhibit 4: NTSB Revised Exhibit 2-AG Overpressurization Requirement RMI-06 Rev 00 and Rev 1)

<sup>170</sup> CCSF-4 (Testimony of John Gawronski at p. 14).

<sup>171</sup> *Id.*

<sup>172</sup> *Id.*

Integrity Management actions, such as ones concerning increasing pressure on transmission lines, must be maintained so that such documents are readily retrievable, protected from damage, and secured sufficiently to prevent unauthorized changes.<sup>173</sup> Gas pipeline operators should keep procedures as well as records in a formal or structured record-keeping system, as opposed to individual working files.<sup>174</sup> Any changes to procedures, gas system, or gas operations, must follow a formal documented management of change process.<sup>175</sup>

The fact that PG&E provided RMI-06 “draft revision 1” to the NTSB shows that PG&E has not properly managed the records to identify changes to its TIMP.<sup>176</sup> It is unclear how the cover sheet from revision 0 was attached to a “draft revision 1,” or why the word DRAFT does not appear anywhere on “draft revision 1.”<sup>177</sup> It shows, at best, that PG&E lost version control over a key document related to its pipeline integrity management, and that PG&E was unable to prevent the dissemination of unauthorized versions of its risk management procedures.<sup>178</sup>

This confusion should give Commission pause for a separate reason. In its letter to the NTSB and the Commission, PG&E attempted to distance itself from the practice of allowing over-pressurizations to 10 percent above the historical operating pressure. PG&E claimed, “the approved RMI-06 (Rev. 0) at the time of original submission is enclosed along with the currently effective RMI-06 (Rev. 1). Neither of them includes the 10 percent provision found in the unapproved version.” Although PG&E claims that draft RMI-06 revision 1 was unauthorized, a rogue version of its risk management instructions, other PG&E documents demonstrate otherwise.

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<sup>173</sup> *Id.*

<sup>174</sup> *Id.*

<sup>175</sup> 49 CFR.192.909(a).

<sup>176</sup> CCSF-4 (Testimony of John Gawronski at p. 14).

<sup>177</sup> CCSF-4 (Testimony of John Gawronski at pp. 14-15).

<sup>178</sup> *Id.*

In an April 12, 2010 memorandum PG&E states that the manufacturing threat for “a pipeline with a manufacturing seam threat, that has previously not been pressure tested, will not activate unless the historical operating pressure (MOP) plus 10 percent is exceeded.”<sup>179</sup> As PG&E uses MOP in this context, it is the MAOP for the pipeline system, i.e. the entire line as opposed to one segment.<sup>180</sup> In the memorandum, PG&E acknowledges that section 192.917(e)(3), and ASME B31.8S do not specify any allowance past the MOP (as it is used in that memorandum).<sup>181</sup> The memorandum states “although PHMSA FAQs further states (sic) that ‘any pressure increase, regardless of amount’ will require assessment, PG&E will interpret that an allowance of MOP + 10% is suitable before the pipeline with a manufacturing defect must be assessed.”<sup>182</sup> Despite acknowledging that its proposed interpretation is contrary to the federal regulations, PG&E intentionally adopted that interpretation. This memorandum shows that it was indeed PG&E’s practice to not prioritize untested pipelines with manufacturing defects unless the pressures exceeded the 5 year historic MOP plus 10 percent.

#### **VIII. ALLEGATIONS RAISED BY TURN TESTIMONY\***

#### **IX. ALLEGATIONS RAISED BY CITY OF SAN BRUNO TESTIMONY\***

#### **X. CONCLUSION**

The Commission should find that PG&E has failed to meet its recordkeeping obligations to provide safe and reliable service under the applicable state and federal law and industry standards.

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<sup>179</sup> Joint 9 (PG&E Response to CPSD Data Request 015-Q01, Attachment 692 in I.11-02-016).

<sup>180</sup> *Id.*

<sup>181</sup> *Id.*

<sup>182</sup> *Id.*

Dated: March 25, 2013

Respectfully submitted,

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## Appendix A: Proposed Findings of Fact

1. Gas is a highly combustible and volatile element, possessing explosive characteristics under certain conditions. (PGE-4 (D. 61269 Adopting General Order 112) at p. 5.)
2. Members of the public and PG&E employees are “entitled to expect that PG&E will transport gas as safely as reasonably possible.” OII at p. 10
3. In addition to complying with all applicable safety laws and regulations, “the Commission expects PG&E to employ good safety engineering practices to its potentially dangerous natural gas pipelines.” OII at p. 10
4. This expectation applies to design, construction, operations, testing, maintenance, inspection, and risk assessment and pipeline replacement. OII at p. 10
5. PG&E’s witnesses agrees that as a natural gas pipeline operator, PG&E has an obligation to operate a safe system. (RT 1265:14-27 (Howe); RT 1018:11-12 (Phillips).)
6. At least one PG&E witness agrees that recordkeeping is not an integral aspect of the safe operation and maintenance of natural gas pipelines. (RT 818:26-819:2 (DeLeon).)

### Segment 180

7. The explosion in San Bruno occurred in Segment 180 of Line 132.
8. PG&E admits that it cannot find records for Segment 180 of Line 132. PG&E-61 at p. 4-1 (“PG&E acknowledges that it cannot conclusively document the origin of the pipe used in the construction of Segment 180.”).
9. Following the pipeline rupture on September 9, 2010, PG&E represented that, according to its GIS system, Segment 180 was a piece of 30 inch seamless, X42 grade pipe with 0.375 wall thickness. (NTSB Report at p. 1.)
10. After the accident, but before the NTSB’s investigation was completed, the NTSB investigators determined that the information contained in PG&E’s GIS database was incorrect. (NTSB Report at p. 1.)
11. As the NTSB found, some PG&E records showed that Segment 180 was a 30 inch, DSAW, X 52 pipe with 0.375 wall thickness. (NTSB Report at p. 27.)
12. PG&E still cannot confirm these pipeline characteristics because it has lost the inspection report for the pipe actually used on Line 132. (Joint RT 536:11-17 (Harrison).)
13. The portion of Segment 180 was made of six approximately 3.5-4.7 feet long segments of pipe, and made of unknown pipe specification. (NTSB Report at p. 27.)
14. The NTSB found that several of the pups had partially welded longitudinal seams that left part of the seam unwelded and that several also had girth welds containing multiple weld defects. (NTSB Report at p. 27.)
15. PG&E agrees that these pups represented a dangerous condition, and asserts that “if PG&E had known about those pups, those would have been replaced in 1957.” (Joint RT 830:17-19 (Zurcher).)

### Records Necessary to Calculate MAOP

16. In 1955 the American Standard Code for Pressure Piping issued ASA B.31.1.8 standard. (PG&E-47.)
17. Since then, PG&E has complied with ASA B.31.1.8. (RT 1019: 9-14 (Phillips).)
18. PG&E's policy until 1996 was to retain every record identified in 192.517 and 192.709 of ASA B.31.1.8. (RT 1054:15-20 (Phillips).)
19. PG&E's witness agreed that prior to the time the federal regulations introduced the grandfather clause, "We were required to have the records under GO 112-A and B, yes, prior to GO 112-C." (RT 1071:16-18 (Phillips).)
20. PG&E witness Phillips stated that PG&E followed 192.619(a) to validate its pipelines MAOP, and that he performed the MAOP validation for all of PG&E's pipelines in 1974-1975. (RT 1166:6-9 (Phillips).)
21. In order to perform this validation, and calculate the design pressure of the pipelines, Mr. Phillips needed to refer to records such as pressure charts, existing pressure test records, and records of the physical design characteristics of these pipelines. (CCSF-3 (March 15, 2011 Declaration of Steven H. Phillips in R. 11-02-019); RT 1124:7-15 (Phillips)  
Records necessary to calculate the design pressure of a pipeline include pipe specification, purchase order, mill certifications. (RT 1762: 10-28 (Zurcher).)
22. On cross-examination, PG&E's witness stated that 50-70% of the high consequence area pipelines with an MAOP established under the grandfather clause had their operating history set pursuant to an affidavit. (CCSF-4 (Testimony of John Gawronski at p. 8).)
23. PG&E has admitted that it lost the pressure charts and terminal operating logs establishing the historical MAOP of these pipelines since they were established in 1974-1975. (PG&E-61 at p. 4-9 PG&E's difficulties in being able to validate the MAOP of its pipelines is likely due to the fact that it has not kept the records from its mill tests.
24. In a 1992 memoranda, a former PG&E employee describes how reorganizations at PG&E had led to pipeline records being undervalued and discarded. According to the memoranda, pipeline history files, strength test and pressure reports, mapping functions and pipeline plat sheets are being no longer kept current "due to the extensive backlog and the perceived lack of importance of the data reflected in the drawings." (ALJ June 20, 2011 Order Entering Memoranda from Former PG&E Employee into Record, Attachment A.)
25. The 1992 memoranda warned that "failure to maintain the data formally on the Plat sheets and the decision not to general Plat sheets for new work may be costly to PG&E in the future and it may be difficult to defend the non-existence of the data." The as-built drawings would have contained "a compendium of hydrotests, land ownership and right-of-way documents, construction details for crossing and plan and profile data." These as-built drawings would have contained much of the relevant information PG&E is now seeking to recreate through its MAOP validation efforts. (ALJ June 20, 2011 Order Entering Memoranda from Former PG&E Employee into Record, Attachment A.)

### How PG&E's Records Affect Its Transmission Integrity Management Program

26. PG&E uses its GIS database as the primary source of information for its TIMP. This database, however, contains inaccuracies. (RT 1000:13-22 (Singh).)
27. The GIS 3.0 database is being created in response to the NTSB's recommendations and the Commission's directive that PG&E validate the MAOP for its pipelines using traceable, verifiable, and complete records. (RT 847:10-16 (Singh).)

28. In building this new database, PG&E will not use any of the information related to pipeline characteristics that is located in its GIS 2.0 database. (RT 999:23-1000:5 (Singh).)
29. To comply with federal safety regulations, and evaluate the potential risks to the pipelines, PG&E needed to gather and integrate existing data and information on the entire pipeline that could be relevant to covered segments. Basic elements of proper data integration and evaluation include: storage, retrieval, granularity, collection, aggregation, and integration. Data integration consists of more than simply putting several types of information into a single location. The most important aspect of data integration is the analysis of aggregated data in order to discern integrity threats and risks that would not otherwise be observed from independently reviewing the various individual data elements. In other words, relevant records should be accessible. (CCSF-4 (Testimony of John Gawronski) at p. 12.)
30. Eight months after the NTSB requested all leak and repair information for Line 132, PG&E produced a 1988 inspection report stating that Line 132 had experienced a longitudinal seam leak at mile post 30.44, approximately 8.78 miles south of the rupture. (NTSB Report at p. 38 and fn 61.)
31. This report included a March 1, 1989 memorandum from PG&E's Technological and Ecological Services stating that a 30" section of Line 132 had been "removed for failure analysis because of a pinhole leak in the longitudinal seam weld." The memorandum states that "[o]verall, the x-ray inspection showed the weld to be of low quality, containing shrinkage cracks and voids, lack of fusion, and inclusions. Although the actual leak could not be found, it is likely that it was related to one of the weld defects." The memorandum also states that "the cracks are pre-service defects, i.e. they are from the original manufacturing of the pipe joint." (PG&E-65 (Ex 3-17: 1989 TES Memorandum).)
32. The leak identified constitutes a failure under TIMP regulations. Moreover, the document shows that PG&E should have been aware of both potential manufacturing and construction defects present on Line 132. PG&E should have seen this document as a warning sign that it must evaluate all similar pipelines for potentially unstable manufacturing and construction defects. (CCSF-4 at p. 10.)
33. The segment with the identified longitudinal seam defect was 0.375 inch wall thickness, X52, 30" DSAW pipe. PG&E installed this segment in 1948. Because the cracks were noted as being pre-service defects, PG&E should have been concerned that its quality control was deficient at the time the segment was installed in 1948. Because PG&E knew about this defect, it should have reviewed its records for other similar pipe segments installed at approximately the same time to determine the extent of the quality control issue. (CCSF-4 at p. 10.)
34. PG&E admits that the pipe characteristics of this segment are essentially identical to the pipe characteristics of Segment 180. (Joint RT 567:23-27 (Harrison).)
35. PG&E witness Zurcher asserted that PG&E did not need to consider the 1988 weld report because it was irrelevant to PG&E's TIMP. (Joint RT 780:23-781:5 (Zurcher).)
36. As part of its investigation, the NTSB asked PG&E to "[p]lease provide a listing of all other pipelines, along with corresponding dates, SCADA printouts, and pressure charts, where PG&E has applied its practice of reestablishing MAOP every 5 years as PG&E has indicated it has done on Line 132. Please provide copies of all policies, standards, procedures, etc. related to PG&E's practice of reestablishing MAOP on its pipelines." (CCSF-4 (Testimony of John Gawronski (Exhibit 3: PG&E's Amended Data Response, NTSB Exhibit 2-AI of the San Bruno Investigation (Docket No. SA-534)).)

37. In response, PG&E asserted that it spiked the pressures on its lines “to avoid [pressure testing] and any potential customer curtailments that may result,” and therefore “PG&E has operated, within the applicable five-year period, some of its pipelines that would be difficult to take out of service at the maximum pressure experienced during the preceding five-year period in order to meet peak demand and preserve the line’s operational flexibility.” PG&E also attached a copy of Risk Management Instruction, (“RMI-06”) “which describes PG&E’s process to increase pressure in certain transmission lines every five years for these operational purposes.” That policy states “to keep from continually losing operating pressure on pipelines that have a potential long seam manufacturing threat, PG&E has made a decision to only reprioritize those pipeline segments that exceeded the historic 5 year MOP plus 10% of the historic 5 year MOP.” (CCSF-4 (Testimony of John Gawronski (Exhibit 3: PG&E’s Amended Data Response, NTSB Exhibit 2-AI of the San Bruno Investigation (Docket No. SA-534)).)
38. Following the NTSB hearings in March 2011, PG&E submitted a letter to the NTSB and the Commission explaining that it had provided the Commission and the NTSB with an incorrect version of RMI-06. PG&E asserts that the version of RMI-06 which it submitted to the NTSB included the cover sheet approval RMI-06 revision 0, but included the body and text of an unauthorized version of RMI-06, revision 1 (referred to below as RMI-06 draft revision 1). PG&E asserts that “we have not identified a cover sheet approval for this RMI-06 revision 1, and we have no indication that it was ever approved.” With the letter, PG&E submitted a new version of RMI-06 revision 1, which PG&E claims is the true version of this document. (CCSF-4: Testimony of John Gawronski (Exhibit 4: NTSB Revised Exhibit 2-AG Overpressurization Requirement RMI-06 Rev 00 and Rev 1).)

## Appendix B: Proposed Conclusions of Law

1. Gas is a highly combustible and volatile element, possessing explosive characteristics under certain conditions. (PGE-4 – D. 61269 Adopting General Order 112 at p. 5.)
2. Section 451 requires every public utility to “furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities .....as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.” (PUC § 451).
3. Adequate recordkeeping is a key component of any reasonable utility program to maintain gas pipelines in a manner that promotes the safety, health, comfort and convenience of its patrons, employees and the public. Adequate records are needed to identify the location, vintage and design of particular equipment in order to maintain and test them accordingly. Adequate records are needed to put into place appropriate limits on pipeline pressure, and to provide for appropriate and timely tests. Adequate records are needed to ensure timely identification and correction of potential safety issues.
4. Section 451 does not require “that there must be another statute or rule or order of the Commission that has been violated [in order] for the Commission to determine there has been a punishable violation.” (*PacBell Wireless v. PUC* (2006) 140 Cal.App. 4th 718, 740.) In other words, Section 451 establishes a separate and distinct basis for the Commission to take action against a utility for safety violations.
5. “Utilities are held to a standard of reasonableness based upon the facts that are known or should be known at the time. While this reasonableness standard can be clarified through the adoption of guidelines the utilities should be aware that guidelines are only advisory in nature and do not relieve the utility of its burden to show that its actions were reasonable in light of circumstances existent at the time.” (D.90-09-088 at p.22)

### Applicable Natural Gas Safety Standards and Regulations

6. ASA B.31.1.8 standard was intended to cover the design, fabrication, installation, inspection, testing, and the safety aspects of operation and maintenance of gas transmission and distribution systems. (PG&E-47 (ASA B.31.1.8 §804.1.)
7. Under ASA B.31.1.8, operators were required to pressure test newly installed transmission lines, and maintain records of those tests for the life of those pipelines. (PG&E-47 (ASA B.31.1.8 §§ 841.411; 841.412; and 841.417.)
8. Under ASA B.31.1.8, operators were required to have necessary records to calculate the appropriate MAOP for each pipeline segment based on the lowest of the design pressure using Barlow’s equation, or the highest pressure reached during pressure tests. (PG&E-47 (ASA B.31.1.8 § 841.412(d).)
9. In order to calculate the design pressure of a pipeline using Barlow’s equation, an operator must know the SMYS of the pipeline, the nominal wall thickness of the pipeline, nominal outside diameter of the pipeline, construction type or class location factor for where the pipeline will be located, the longitudinal joint factor of the pipeline, and the temperature derating factor of the pipeline. (PG&E-47 (ASA B.31.1.8 § 841.1.)
10. In D.61269, the Commission adopted General Order (“G.O.”) 112, because it determined that a general order relating to gas piping systems was necessary to promote and safeguard public health and safety and to promote the maintenance of adequate gas service to the public and is in the public interest. (PGE-4 – D. 61269 Adopting G.O.112 at p. 11.)

11. The Commission has an obligation under the Public Utilities Code to ensure the safe service of natural gas, which obligation is independent of a natural gas operator's compliance with ASA B.31.1.8. (PGE-4 – D. 61269 Adopting General Order 112 at p. 6.)
12. Public utilities serving or transmitting gas bear a great responsibility to the public respecting the safety of their facilities and operating practices. (PGE-4 – D. 61269 Adopting G.O.112 at p. 12, Finding 11.)
13. No code of safety rules, no matter how carefully and well prepared, can be relied upon to guarantee complete freedom from accidents. Moreover, the promulgation of precautionary safety rules does not remove or minimize the primary obligation and responsibility of natural gas operators to provide safe service and facilities in their gas operations. Officers and employees of natural gas operators must continue to be ever conscious of their obligation to the public in regards to safety. (PGE-4 – D. 61269 Adopting G.O.112 at p. 12, Finding 8.)
14. G.O. 112 imposed minimum requirements for design, construction, quality of materials, location, testing, operation and maintenance of facilities used in the transmission and distribution of gas, to safeguard life or limb, health, property and public welfare and to provide that adequate service will be maintained by gas utilities. (PGE-4 – G.O. 112 § 102.1 at p. 1.)
15. Compliance with G.O. 112 does not relieve natural gas operators from complying with any statutory requirements. (PGE-4 – G.O. 112 § 104.4 at p. 1.)
16. Under G.O. 112, utilities must maintain necessary records to establish compliance with the G.O. Utilities must make such records available for inspection by the Commission or the Commission staff at all times. (CCSF-1 Integrated GO 112 with ASA B.31.8 – 1958, § 301.1.)
17. Beginning in 1961, natural gas operators in California were required to construct and operate gas transmission and distribution facilities in compliance with the ASA B.31.8. – 1958 standard. (PGE-4– G.O. 112 § 107.1 at p. 2.)
18. G.O. 112 required natural gas operators to pressure test newly installed transmission lines and maintain records of those tests for the life of those pipelines. (CCSF-1 – Integrated G.O.-112 with ASA B.31.8 –1958, § 209.1 (841.411, 841.417.)
19. G.O. 112 required operators to have necessary records to calculate the appropriate MAOP for each pipeline segment based on the lowest of the design pressure using Barlow's equation, or the pressure obtained by dividing pressures recorded during a pressure test by certain class location factors. (CCSF-1 – Integrated G.O.-112 with ASA B.31.1.8 – 1958, § 209 (Table 841.412(d).)
20. The Department of Transportation enacted federal safety regulations in 1970.
21. In D.78513 the Commission adopted G.O. 112-C and incorporated by reference the new federal regulations. (D.78513 at p. 3.)
22. G.O. 112-C states “the responsibility for the maintenance of necessary records to establish that compliance with these rules has been accomplished rests with the utility. Such records shall be available for inspection at all times by the Commission or the Commission staff. (G.O. 112-C § 121.1.)
23. Pursuant to federal regulations, natural gas operators are required to pressure test all new transmission lines and keep records of those pressure tests for the useful life of the pipeline. (49 CFR § 192.517.)

24. Section 192.709 requires natural gas operators to keep records of the date, location, and description of each repair made to pipe (including pipe-to-pipe connections) and to retain those records for as long as the pipe remains in service.
25. Section 192.619(a) also requires operators to calculate the MAOP of a pipeline using the lowest of design pressure using Barlow's formula, test pressure, or the pressure obtained by dividing pressures recorded during a pressure test by certain class location factors.
26. Section 192.619(c) allows operators to set the MAOP of a pipeline based on highest actual operating pressure the pipe was subjected to from July 1, 1965 to July 1, 1970, if the pipeline is found to be in satisfactory condition considering its operating and maintenance history.
27. PG&E's arguments about the intent and purpose of the grandfather clause are unfounded.
28. Setting a pipeline's MAOP and the record keeping obligations for those pipelines are two distinct issues. Operating a pipeline pursuant to the grandfather clause does not excuse the record keeping obligations associated with those pipelines. (RT 1072:12-15 (Phillips).).
29. The Department of Transportation indicated when it adopted the regulations that it expected that operators would have detailed records of its pipe and components to be able to calculate MAOP based on the weakest element in the pipeline system, and that operators would have pressure test records to validate the MAOP. (CCSF-4, Exhibit 1 (35 Federal Register 13248 (August 19, 1970) (Exhibit 1).)
30. The Department of Transportation allowed grandfathered pressures because it assumed the pipelines that grandfathered pipelines would primarily be those pipelines that: (a) had been installed from 1935 to 1951; and (b) either applied lower class location design factors than the industry applied since 1952 up until the 1968, or had only been tested to 50 psi above the MAOP. (*Id.*)
31. If the operators lacked pressure test records and could not determine the MAOP based on the weakest element, the Department of Transportation would not have considered the historic operating pressure to be safe. (CCSF-4 (Testimony of John Gawronski at p. 8.)
32. The Commission has already rejected PG&E's assertion that "until the NTSB recommendations it had no obligation to maintain accurate and accessible records of the components of its natural gas transmission system because the historical exemption provision of 49 C.F.R. § 192.619(c) did not require these records." (D12-12-30 at p. 95.)
33. In order to validate the MAOP under of 49 C.F.R. § 192.619(c), PG&E was required to operate its pipelines at the lowest pressure based on: (1) the design pressure, (2) the pressure obtained by dividing pressure test records by certain class location factors, or (3) the highest actual operating pressure to which the segments was operated from July 1, 1965 to July 1, 1970. (49 C.F.R. §192.619(a).)
34. If PG&E had calculated the MAOP of its pipelines pursuant to § 192.619(a), it would not have needed to use the grandfather clause (§192.619(c)).

How PG&E's Record Affect Its Transmission Integrity Management Program

35. PG&E'S poor record keeping has negatively affected its transmission integrity management program.
36. Given that PG&E is endeavoring to entirely re-create its database of pipeline records, and is not using the information available in GIS 2.0 in its GIS 3.0 database, it is reasonable to conclude that PG&E's GIS 2.0 is not reliable for use in PG&E's day-to-day gas operations.

37. If PG&E's GIS system had accurately reflected the pipeline specifications PG&E asserts were contained in its job file for Segment 180, and PG&E had faithfully complied with the Integrity Management rules, then it is likely that PG&E would have examined Segment 180 for similar longitudinal defects prior to September 2010.
38. Operators are required to consider information on the operation, maintenance, patrolling design, operating history, and specific failures and concerns that are unique to each system and segment will be needed. (49 C.F.R. §192.917(b); See also Ex. Joint-28 (ASME B.31.8S section 2.3.2).)
39. PG&E's admitted confusion surrounding draft procedures and misplaced cover sheets demonstrates that PG&E's control over important Integrity Management protocols has been lacking. The procedure at issue concerned PG&E's practice of raising the pressure on its pipelines. PG&E's difficulties in providing prompt and accurate answers regarding its procedures demonstrates that PG&E has failed to comply with the TIMP management of change requirements. (49 C.F.R. § 192.909(a).)