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 to Determine Violations of Public Utilities Code Section 451, General Order 112, and Other Applicable Standards, Laws, Rules and Regulations in Connection with the San Bruno Explosion and Fire on September 9, 2010.	I.12-01-007 (Filed January 12, 2012) (Not Consolidated)
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) (Not Consolidated)
Order Instituting Investigation on the Commission's Own Motion into the Operations and Practices of Pacific Gas and Electric Company's Natural Gas Transmission Pipeline System in Locations with Higher Population Density.	I.11-11-009 (Filed November 10, 2011) (Not Consolidated)

OPENING BRIEF OF THE CONSUMER PROTECTION AND SAFETY DIVISION ON FINES AND REMEDIES

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The Consumer Protection and Safety Division (CPSD)[1] submits this Opening Brief on Fines and Remedies pursuant to the ALJ Ruling dated September 25, 2012. CPSD's joint recommendations for fines and remedies in the three San Bruno-related Orders Instituting Investigation (OIIs), I.12-01-007 (SB OII), I.11-02-016 (Recordkeeping OII), and I.11-11-009 (Class Location OII), are described herein.

I. INTRODUCTION

The explosion in San Bruno on September 9, 2010 was the worst accident of any electric or gas public utility in the history of California. The death toll, physical injuries, and extensive damage to homes, is unsurpassed in its severity. Pacific Gas and Electric Company (PG&E) is responsible for the San Bruno explosion, and tragically, it was entirely foreseeable and preventable. The severe consequences of the violations that led to the explosion are the worst ever seen in a Commission investigation, described (below) in statements by victims.[2] The serious failure by PG&E to detect and prevent this explosion, leading up to (and during) the incident, was morally and ethically reprehensible.

Although PG&E's media campaign publicly admitted that PG&E "had lost its way," a PG&E witness in this case stated that PG&E had not lost its focus on safety, but had only failed to keep up with "the changes in the industry."[3] In PG&E's Opening Brief (OB) in both the SB OII and the Recordkeeping OII, PG&E states that it is "morally" and "legally" responsible, but then comprehensively denies doing anything wrong. (PG&E SB OB, p. 1, PG&E Recordkeeping OB, p. 1.) In its briefs, PG&E does not indicate that

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[1] On January 1, 2013, CPSD officially changed its name to the Safety and Enforcement Division (SED). However, in light of all of the references to CPSD in the previous rulings by the Commission and the Administrative Law Judges (ALJs), pleadings, exhibits, testimony and cross-examination of witnesses and corresponding transcript references, to avoid confusion we will continue to refer to SED as "CPSD" in this brief and through the remainder of this proceeding.

[2] CPSD obtained statements from survivors of the incident. The Declarations of Susan Bullis (CPSD-6), Betti Magoolaghan (CPSD-7), and Robert Pelligrini (CPSD-8) describe the extreme pain and mental anguish caused by the terrible heat and duration of the explosion and fire, and are described herein. Unless otherwise indicated, all evidence herein is evidence in SB OII proceeding.

[3] (Reporter's Transcript (RT) 974.)

any real change has occurred. Instead, the briefs show that PG&E does not believe it has done anything wrong, does not believe in safety, and does not believe that the pipe that ruptured was fatally flawed.

The violations from the three investigations pertain to the San Bruno tragedy and to other serious systematic, repeated, and serious violations of safety laws and regulations. PG&E virtually ignored its responsibilities to comply with state and federal law promulgated to ensure pipeline safety for populations of people living and working near transmission pipelines. PG&E is missing many thousands of records required by law to ensure that strength test records are created, maintained, and available. PG&E has ignored its obligations under the law, and put its profits ahead of the safety of the general public.

The Commission should consider that the public's faith and trust has been badly shaken by the revelation that PG&E had *literally no idea that the flawed pipe sections that ruptured were there*. Given PG&E's lack of essential knowledge and accurate and complete gas system data, PG&E cannot even assure the Commission or the public that there are not more buried mistakes in its system. The records containing that information are lost, or hopelessly inaccurate. There is a strong public interest in a large penalty that effectively sends the signal that ignorance of the flawed pipe sections and missing records will not be tolerated.

It is totally unacceptable that PG&E now claims that it did not know that it used pipe sections that were not suitable gas transmission pipelines.[4] *PG&E is required to know*. The Commission has stated "[f]urnishing and maintaining safe natural gas transmission equipment and facilities requires that a natural gas transmission system operator *know the location and essential features of all such installed equipment and facilities*." D.12-12-030, pp. 91-92 (Emphasis added.)

The list of PG&E's failures, described in the three CPSD Opening Briefs, is long and reprehensible. PG&E did not visually inspect the pipe sections before placing them

in service;[5] did not test its pipelines;[6] did not keep records showing the existence of any of the pups;[7] did not keep records showing its pressure tests or other critical information;[8] did not upgrade its pipelines in areas of increasing population;[9] ignored its own engineers' warnings about aging pipeline that needed to be replaced;[10] ignored potential weld seam issues known to exist on pipelines of a similar manufacture and age;[11] ignored overpressurizations that jeopardized the integrity of the pipelines;[12] did not replace aging equipment until it failed;[13] ignored leak incidents on Line 132 and similar transmission pipelines;[14] failed to be prepared for a predictable incident;[15] did not shut off the gas promptly after the explosion;[16] and failed to make contact and coordinate with fire or police departments immediately after the incident.[17] Each one of these is a serious violation that contributed to the explosion.

PG&E could have learned from past experience. Approximately two years before San Bruno occurred, there was a smaller but similar explosion caused by PG&E in

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(continued from previous page)

[4] CPSD-1, p. 20.

[5] CPSD-9, p. 96.

[6] CPSD-1, p. 64.

[7] *Id.*, p. 65.

[8] The violations relating to PG&E's recordkeeping failures are described in CPSD's Opening Brief in I.11-02-016, and summarized herein.

[9] The violations relating to PG&E's class locations are described in CPSD's Opening Brief in I.11-11-009, and summarized herein.

[10] CPSD-5, pp. 63-64; CPSD-167, Vol. IV, pp. 880 and 884.

[11] CPSD-1, p. 41.

[12] CPSD-1, p. 49.

[13] CPSD-1, p. 98; CPSD-5, pp. 42 – 49.

[14] CPSD-1, p. 30.

[15] CPSD-1, p. 113.

[16] *Id.*, p. 102.

[17] *Id.*, p. 118.

Rancho Cordova, California, where one person was killed, 5 people were injured, and 3 homes were destroyed.[18] In that case, the Commission imposed a fine of $38 million.[19] And yet, when asked what the lessons to be learned from Rancho Cordova were, a PG&E witness stated, "I don't have the detailed understanding of what those lessons were." (RT 315:23-316:1.)

The Commission itself must recognize its contribution to the lax safety culture, at least prior to the Rancho Cordova OII proceeding, by its failure to vigorously enforce the past safety violations. The panel of independent experts, who were retained by the CPUC immediately following the San Bruno accident to analyze the technical and root causes of the accident, cited a "culture of compliance" created by the CPUC in which safety was not regarded as high as a priority as it deserves. [20] Consequently, the Commission's current enforcement efforts in its present OIIs and its Order Instituting Rulemaking (OIR), in R.11-02-019, which ultimately resulted in the Commission's D.12-12-030 mandating PG&E's Pipeline Safety Enhancement Plan (PSEP), are precisely the actions, which Commission must take to establish that the Commission will not tolerate PG&E's unreasonable and imprudent actions, which have placed the general public in harm's way. Moreover, the Commission should provide the maximum penalty, which PG&E can afford to pay, in order to send the message to PG&E's management that it must ensure that its facilities will be safe in the future.

Commission guidelines in setting the appropriate level of penalties call for consideration of several factors in determining the size of the penalty: the severity of the offense(s); the physical and economic harm caused by the violations; the conduct of the utility to detect and prevent the violations; the resources of the utility; the role of

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[18] D.11-12-021.

[19] CPSD and PG&E initially settled the case for $26 million; the Presiding Officer found that the settlement was reasonable in every respect except the fine amount, which was raised to $38 million. D.11-12-021.

[20] The Independent Review Panel goes on to say that budget cuts and hiring constraints imposed by Sacramento has hampered the CPUC's ability to hire and train technical staff to perform the most critical safety enforcement functions.

precedent; and the public interest. Section 2107 provides that each offense is subject to a penalty of $500 - $20,000 per day.[21] Section 2108 provides that each day a violation continues is an ongoing violation.

CPSD has proven, in all of the three San Bruno-related OIIs together, more than one hundred violations that continued for years, some as long as 54 years. Imposing a fine for each violation for each ongoing day would result in tens of billions of dollars of fines, which is more than PG&E's net worth. Consequently, CPSD recognizes that there is a limit on how much PG&E can afford to pay, because PG&E needs to retain its creditworthiness in order to be able to pay for its improvements in the safety of its facilities, as well as to procure natural gas and electric power.

How much is a human life worth? Is there a price tag that can be attached to each human to give them a dollar and cents value? In our culture human life is priceless. There is no fine large enough to recoup a human life, much less 8 lives. Fines are normally used to "effectively deter further violations by this perpetrator or others." [22]

The present case is an extraordinary one where the usual remedy of imposing penalties, which would go to the General Fund, does not make sense. PG&E's gas transmission system is broken due to decades of PG&E mismanagement, and it will take billions of dollars and years to bring it up to acceptable safety standards. Because PG&E only has a finite amount of money, which it can afford to pay for penalties, and its ratepayers would have to pay the remaining amount of dollars required to repair PG&E's natural gas transmission system, the Commission should use its equitable powers to order PG&E to pay for remedies that will ensure that its system will be safe without putting the entire burden on ratepayers.

As the Court stated in *Wise v. Pacific Gas and Electric Co.* (1999) 77 Cal.App.4th

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[21] As of January 2012, SB 879 increased the penalties from up to $20,000 per violation to up to $50,000 for each violation. Unless otherwise indicated, any reference herein to a statutory section is a reference to a section of the California of Public Utilities Code.

[22] D.98-12-075, 1998 Cal. PUC LEXIS 1018, #54.

287, 299: "The PUC may exercise equitable jurisdiction as an incident to its express duties and authorities. Pursuant thereto, it may, for example, issue injunctions in aid of its jurisdiction [or] direct that a trust fund be created to consider potential refunds."

A. Summary of Recommendations

CPSD recommends that PG&E be penalized $2.25 billion for all three San Bruno related OIIs together and that PG&E be ordered to spend $2.25 billion on remedies to make its gas transmission system safe. This penalty will be the largest penalty ever assessed to a utility company. This $2.25 billion should be directed toward paying for Phase I and Phase II costs and expenses of PG&E's PSEP, which the Commission had mandated in D.12-12-030, prior to collecting any money from the ratepayers. This includes pipe replacement, installation of safety values, hydrostatic testing, verification audits and inspections, and development of safety management systems. This penalty includes the money that PG&E has already spent in PSEP amounts and money that PG&E will spend over a number of years toward PSEP I and PSEP II. This penalty is not recoverable from ratepayers nor are the capital expenditures paid for by these amounts to be included in the rate base. PG&E can not underspend in any other areas of their operations that affect safety to offset any of these expenditures. In addition, CPSD has developed a comprehensive set of detailed recommendations to be funded by this penalty that are designed to remediate the violations, ensure a safer gas transmission system, and restore the public's faith and trust. CPSD's explanation of the recommended penalty amount and remedies are specified below.

II. SUMMARY OF VIOLATIONS

During the investigation of San Bruno, it became apparent to CPSD that the number of the violations, their severity, and their long duration periods, would result in a fine that would be astronomical. In light of this, CPSD retained a financial consultant to examine the ability of PG&E to pay fines without incurring serious detrimental

consequences to California's ratepayers.[23] Also, CPSD brought a motion to have one consolidated brief on fines and remedies in the three San Bruno-related OIIs. The ALJ granted CPSD's request on September 25, 2012. CPSD submitted separate Opening Briefs detailing PG&E's violations in the three OII proceedings and separate reply briefs, and now submits this Opening Brief on fines and remedies that consolidates CPSD's recommendations in all three. Below is a summary of the violations described by CPSD is each of the three OIIs. PG&E's ability to pay fines will be discussed further below in the section entitled "Financial Resources of the Utility".

A. I.12-01-007 (SB OII)

CPSD's Opening Brief in the SB OII, filed on March 11, 2013, contains two appendices that summarize the violations described in detail in the Opening Brief. In Appendix B, CPSD sets forth the conclusions of law recommended by CPSD, which includes separate conclusions regarding each of the 55 violations alleged by CPSD. In Appendix C, CPSD includes a shorthand summary of each of the 55 violations in a table that includes the alleged date range for each violation. Subsequent to an ALJ ruling, the table was amended to add a reference to the factual bases in the OII or one or more of its referenced documents that provides PG&E with notice of the allegations listed in Appendix C. The record support for the violations are contained in CPSD's Opening Brief in the SB OII, and the CPSD's Reply Brief, dated April 25, 2013 in the SB OII.

Although PG&E has also filed its own Opening Brief and Reply Brief in the SB OII, its briefs have improperly attempted to rely upon evidence outside of the record. For example, contemporaneous with the filing of its Opening Brief, PG&E filed a Request for Official Notice of other documents, which were not in the record. PG&E usurped the Presiding ALJ's authority by granting its own request and including numerous references to these documents throughout its opening brief. When CPSD objected, the Presiding

[23] See exhibit Joint-51, "Financial Analysis of PG&E Corporation" by Overland Consulting, which attempted to provide an "objective examination, of PCG's financial health" as well as Overland's "estimate of its ability to raise equity capital sufficient to fund a CPUC imposed fine." (Joint-51, p. 1.)

ALJ denied PG&E's request and instructed PG&E to delete references to these documents and provide redlined versions of its Opening Brief to show where the references to the documents were deleted. With complete defiance to the Presiding ALJ's previous ruling, in PG&E's Reply Brief in the SB OII, PG&E referred to numerous documents that are not in the record and which PG&E did not even request official notice. *See*, *e.g.*, PG&E Reply Brief, pp. 142-144 and fns. 796, 798-801. CPSD objects to PG&E's references to any materials not in the record, and requests that PG&E's counsel be admonished for this clear circumvention of the hearing process and the Presiding ALJ's previous ruling.

Below is a summary of those violations, with the date ranges:

1. PG&E failed to follow industry safety standards during the construction of Segment 180 in 1956, creating an unreasonably unsafe system in violation of Public Utilities Code Section 451. (1956-09/09/2010)
2. By installing pipe sections (pups) in Segment 180 that did not meet any known industry specifications for fabrication of gas transmission pipe, PG&E created an unreasonably unsafe system in violation of Public Utilities Code Section 451. (1956-09/09/2010)
3. By installing pipeline sections that were not suitable and safe for the conditions under which they were used, PG&E violated the safe industry practices described in Section 810.1 of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)
4. PG&E violated Section 841.412(c) by not conducting a hydrostatic test on Segment 180 post-installation, creating an unsafe system in violation of Section 451. (1956-09/09/2010)
5. By failing to visually inspect for and discover the defects in Segment 180, PG&E violated Section 811.27(A) of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)
6. By installing pipe sections in Segment 180 that were less than 5 feet in length, PG&E violated API 5LX Section VI, creating an unsafe system in violation of Section 451. (1956-09/09/2010)
7. By installing pipe sections which did not meet the minimum yield strength prescribed by the specification under which the pipe was purchased, PG&E violated Section 805.54 of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)

8. By assigning a yield strength value for Segment 180 above 24,000 psi when the yield strength was actually unknown, PG&E violated Section 811.27(G) of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)

9. By welding the pups in a deficient manner PG&E violated Section 811.27(E) of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)

10. By welding the pups in a deficient manner such that the girth welds contained incomplete fusion, burnthrough, slag inclusions, cracks, undercuts, excess reinforcement, porosity defects, and lack of penetration, PG&E violated Section 1.7 of API standard 1104 (4^{th} edition, 1956) creating an unsafe system in violation of Section 451. (1956-09/09/2010)

11. By not completely welding the inside of the longitudinal seams on pups 1, 2, and 3 of Segment 180 and failing to measure the wall thickness to ensure compliance with the procurement orders which required 0.375-inch wall thickness, PG&E violated Section 811.27(c) of ASME B31.1.8-1955, creating an unsafe system in violation of Section 451. (1956-09/09/2010)

12. PG&E did not incorporate the pups, which were the weakest element of Segment 180, when it calculated the design pressure at 400 psi. This resulted in an unreasonably high MAOP for Segment 180, creating an unsafe system condition in violation of Section 451. (1956-09/09/2010)

13. By not having complete and accurate knowledge of the specifications or characteristics of the pup that failed, PG&E could not have accurately determined the weakest element of the pipeline, and consequently did not know the design pressure of the pups. PG&E therefore did not meet the MAOP determination requirements in Section 845.22 of ASME B31.1.8-1955, creating an unsafe system condition in violation of Section 451. (1956-09/09/2010)

14. PG&E violated 49 CFR Part 192.107(b)(2), by not assigning a yield strength of 24,000 psi when the yield strength was unknown and untested. (08/19/1970 – 09/09/2010)

15. PG&E violated 49 CFR Part 192.917(b), by not adequately gathering and integrating required pipeline data, thereby not having an adequate understanding of the threats on Line 132. (12/15/2003 – 09/09/2010)

16. By failing to check for and verify the accuracy of its pipeline data, PG&E violated Section 5.7 of ASME B31.8S, which is incorporated by reference into 49 CFR Part 192. (08/19/1970 – 09/09/2010)

17. PG&E's failure to analyze the data on pipeline weld defects resulted in an incomplete understanding of the manufacturing threats to Line 132, in

violation of 49 CFR Part 192.917(a) and ASME-B31.8S Section 2.2. (12/15/2003 – 09/09/2010)

18. As a result of ignoring the category of DSAW as one of the weld types potentially subject to manufacturing defects, PG&E failed to determine the risk of failure from this defect in violation of 49 CFR Part 192.917(e)(3). (12/15/2003 – 09/09/2010)

19. PG&E violated 49 CFR Part 192.917(e) and (e)(3)(i), by not determining the risk of failure from manufacturing and construction defects of Line 132 after operating pressure increased above the maximum operating pressure experienced during the preceding five years. (12/11/2003 – 09/09/2010)

20. PG&E violated 49 CFR Part 192.917(e)(3)(i), by not considering manufacturing and construction defects on Line 132 unstable and prioritizing the covered segments as high risk for the baseline assessment or a subsequent reassessment, after operating pressure increased above the maximum operating pressure experienced during the preceding five years. (12/11/2003 – 09/09/2010)

21. PG&E violated 49 CFR Part 192.917(e)(2), by failing to consider and test for the threat of cyclic fatigue on Segment 180. (12/15/2003 – 09/09/2010)

22. By not performing pipeline inspections using a method capable of detecting seam issues, PG&E violated Part 192.921(a). (12/15/2003 – 09/09/2010)

23. PG&E violated 49 CFR Part 192.917(e)(4), by not conducting appropriate testing such as hydrostatic testing or in-line inspections on Line 132, after exceeding MOP on segments of Line 132 that contained electric resistance welded (ERW) pipe. (12/11/2003 – 09/09/2010)

24. PG&E did not know the variability or accuracy of assessment results as a consequence of failing to identify where and how unsubstantiated data was being used, in violation of ASME-B31.8S Section 4.4, which is incorporated by reference into 49 CFR Part 192. (12/15/2003 – 09/09/2010)

25. PG&E violated 49 CFR Part 192.917(c) and ASME-B31.8S Section 5.7, by: (1) failing to conduct risk assessment that considers the identified threats for Line 132; (2) failing to consider the consequences of past events on Line 132; and (3) failing to account for missing or questionable data. (12/15/2003 – 09/09/2010)

26. PG&E violated 49 CFR Part 192.917(c) and ASME-B31.8S Section 5, by using risk ranking algorithms that did not: (1) properly weigh the threats to Line 132, because PG&E did not include its actual operating experience; (2) properly identify the Potential Impact Radius of a rupture, by using a value of 300 feet where the PIR is less than that; (3) identify the proper Consequence of Failure formula, by not accounting for higher population

densities; (4) use conservative values for electrical interference on Line 132, which created an external corrosion threat; (5) include any consideration of one –call tickets, which indicates third party damage threats; (6) include any consideration of historic problems with the type of pipe used on Segment 180. (12/15/2003 – 09/09/2010)

27. PG&E violated Public Utilities Code section 451 because PG&E violated ASME-B31.8S Appendix A, Section 4.2, by failing to use conservative assumptions where PG&E was missing important pipeline data such as pipe material, manufacturing process, and seam type. (12/15/2003 – 09/09/2010)

28. PG&E violated Public Utilities Code section 451, by engaging in the practice of increasing the pressure on Line 132 every 5 years to set the MAOP for the purpose of eliminating the need to deem manufacturing and construction threats unstable, thereby avoiding the need to conduct hydrostatic testing or in-line inspections on Line 132. (12/15/2003 – 09/09/2010)

29. PG&E violated 49 CFR Part 192.13(c), by failing to follow its internal work procedures that are required to be established under Part 192. (09/09/2010)

30. By failing to follow its work procedures on September 9, 2010, PG&E created an unreasonably dangerous condition in violation of Section 451. (09/09/2010)

31. PG&E violated 49 CFR Part 192.605(c), by failing to establish adequate written procedures for maintenance and operations activities under abnormal conditions. (09/09/2010)

32. PG&E created an unreasonably unsafe system in violation of Public Utilities Code Section 451, by poorly maintaining a system at Milpitas that had defective electrical connections, improperly labeled circuits, missing wire identification labels, aging and obsolete equipment, and inaccurate documentation. (02/2010 – 09/09/2010)

33. PG&E created an unreasonably unsafe system in violation of Section 451, by poorly designing a SCADA system that gave too many unnecessary alarm messages to its Operators, thereby increasing the risk of an important alarm being mishandled. (2005 – 09/09/2010)

34. PG&E's failure to create and follow good emergency plans created an unreasonably unsafe system in violation of Public Utilities Code Section 451. (08/31/2009 – 09/09/2010)

35. The inconsistencies between corporate and divisional level Emergency Plans violate the legal requirement in 49 CFR Part 192.615(a)(3) for a "prompt and effective response" to an emergency notice. (08/31/2009 – 09/09/2010)

36. By failing to create an assistance agreement for notifying and coordinating with appropriate fire, police, and other public officials of gas pipeline

emergencies, PG&E violated 49 CFR Part 192.615(a)(8). (08/31/2009 – 09/09/2010)

37. By failing to have mutual assistance agreements with local first responders, PG&E violated 49 CFR Part 192.615(c)(4), which requires operators to establish and maintain liaisons with appropriate fire, police, and other public officials to plan how the operator and the officials can engage in mutual assistance to minimize hazards to life of property. (08/31/2009 – 09/09/2010)

38. PG&E's slow and uncoordinated response to the explosion violates the requirement of 49 CFR Part 192.615(a)(3) for an operator to respond promptly and effectively to an emergency. (09/09/2010)

39. PG&E did not adequately receive, identify, and classify notices of the emergency, in violation of 49 CFR Part 192.615(a)(1). (09/09/2010)

40. PG&E did not provide for the proper personnel, equipment, tools and materials at the scene of an emergency, in violation of 49 CFR Part 192.615(a)(4). (09/09/2010)

41. PG&E's efforts to perform an emergency shutdown of its pipeline were inadequate to minimize hazards to life or property, in violation of 49 CFR Part 192.615(a)(6). (09/09/2010)

42. Rather than make safe any actual or potential hazards to life or property, PG&E's response made the hazards worse, in violation of 49 CFR Part 192.615(a)(7). (09/09/2010)

43. PG&E's failure to notify the appropriate first responders of an emergency and coordinate with them violated 49 CFR Part 192.615(a)(8). It is clear that PG&E's emergency plans were ineffective, and were not followed. (09/09/2010)

44. PG&E violated 49 CFR Part 192.605(c)(1) and (3) by failing to have an emergency manual that properly directed its employees to respond to and correct the cause of Line 132's decrease in pressure, and its malfunction which resulted in hazards to persons and property, and notify the responsible personnel when notice of an abnormal operation is received. (08/31/2009 – 09/09/2010)

45. PG&E failed to establish and maintain adequate means of communication with the appropriate fire, police and other public officials, in violation of 49 CFR Part 192.615(a)(2). (09/09/2010)

46. PG&E failed to protect "people first and then property", in violation of 49 CFR Part 192.615(a)(5). (09/09/2010)

47. PG&E failed to establish and maintain a liaison with fire, police, and others to plan how to engage in mutual assistance to minimize hazards to life and property, in violation of 49 CFR Part 192.615(c)(4). (08/31/2009 – 09/09/2010)

48. PG&E's inadequate training resulted in a slow and ineffective recognition of the incident, in violation of 49 CFR Part 192.615(a)(3). (09/09/2010)

49. PG&E failed to train the appropriate operating personnel to assure they are knowledgeable about procedures and verify that the training is effective, in violation of 49 CFR Part 192.615(b)(2). (09/09/2010)

50. PG&E failed to train its employees and determine whether procedures were effectively followed in emergencies, in violation of 49 CFR Part 192.615(b)(3). (09/09/2010)

51. PG&E failed to periodically review its emergency response by its personnel to determine the effectiveness of the procedures, in violation of 49 CFR Part 192.605(c)(4). (09/09/2010)

52. PG&E did not educate the public and governmental organizations as to hazards associated with unintended releases on a gas pipeline and steps that should be taken for public safety in the event of a gas pipeline release, in violation of 49 CFR Part 192.616(d). (09/09/2010)

53. PG&E violated 49 CFR Part 199.225(a), by failing to perform alcohol tests on the employees involved within 2 hours of the incident, and failing to record the reasons for not administering the test in a timely fashion. (09/09/2010)

54. By failing to test any of the PG&E Gas Control staff, PG&E violated 49 CFR Part 199.225(a) and 49 CFR Part 199.105(b), which requires drug and alcohol testing of all personnel whose performance cannot be completely discounted as a contributing factor. (09/09/2010)

55. PG&E created an unreasonably unsafe system in violation of Public Utilities Code Section 451, by continuously cutting its safety-related budgets for its GT&S and, therefore, causing the following: (1) a reduction in the replacement of PG&E's aging transmission pipeline by spending significantly less than the Commission had authorized through its approved funding of its GPRP and ending the transmission replacement part of its GPRP prematurely well before its original goal; (2) not seeking sufficient funds for its O&M, and then spending less than the amount it sought from the Commission, including using less effective and lower cost integrity management methods, such as ECDA over ILI; and (3) reducing its safety-related workforce. During the same time period, PG&E provided bonuses or "incentives" to management and employees, claimed that cost savings would accrue to the shareholders, paid quarterly cash dividends to shareholders

from retained earnings, repurchased stock from PG&E Corporation or from a PG&E subsidiary, expended funds to enhance public perception of PG&E, and expended money to affect ballot initiatives. (01/01/1998 – 09/09/2010)

CPSD has found a total of 55 violations, for a number of days exceeding 300,000 days, pursuant to Section 2108 which states that each day a violation is ongoing is a separate offense.

B. I.11-02-016 (Recordkeeping OII)

In the Recordkeeping OII, CPSD's Opening Brief references the same numbers and same violations as shown in the list below except for the two violations subsequently withdrawn. The time periods over which CPSD claims these violations took place is shown in a table at the end of these violations herein. The first 35 points show the current violations. Point 36 places the totality of the recordkeeping violations into overall context. Any reference to evidence in this section is referencing the evidence in the Recordkeeping OII. The more detailed record evidence supporting the violations are contained in both CPSD's Opening Brief and CPSD's Reply Brief in the Recordkeeping OII.

1. PG&E violated Cal. Pub. Util. Code §451, 1955 ASME Standards §804.5 and §811.25 -§811.27 for no records for salvaged pipe installed into Segment 180.

PG&E failed to promote safety and, therefore, endangered its patrons, employees and the public when it failed to create and maintain accurate, complete, and accessible records of pipe salvaged from its transmission system and reused in Line 132. PG&E engaged in an inherently unsafe practice by failing to create and retain orderly records of salvaged, reconditioned and reused pipe. After the San Bruno incident, PG&E searched its records in an effort to determine the source of the failed pipe and produced to the NTSB a pieced-together summary of new and reused pipe used in the installation of Segment 180. (CPSD Exhibit 2, Page 2, Lines 4-6). PG&E has been unable to identify records that clearly document the source of the piece of pipe that failed. (NTSB_460802, p. 6).

If PG&E had kept orderly and accurate records reflecting the purchase, installation, salvage, reconditioning, inspection, and reuse of pipe installed in its transmission system, PG&E would not have selected for use in Segment 180 the section of pipe that failed on September 9, 2010. (CPSD Exhibit 2, Page 2, Lines 8-11). If PG&E had maintained proper records and data, PG&E would have had sufficient information to determine that the pipe did not meet PG&E's own specifications for high-pressure transmission pipe. (NTSB_460278, p.4 and p.10) Further, if PG&E had visually inspected the pipe at any time prior to installation, it would have rejected the section of pipe fabricated from several pups based on the obvious poor quality of welds. (NTSB Summary Report and NTSB 469689, NTSB Report, Office of Research and Engineering, Figure 9 e.p. 16) At the least, informative data and records pertaining to the pipe would have triggered an inspection of the pipe. Thus, PG&E's poor recordkeeping practices made it possible for a piece of junk pipe that did not meet minimum safety standards to be installed in a high pressure transmission line (CPSD Exhibit 4, Page.3, Lines 11-19) in the ground under a soon to be constructed housing tract. This piece of junk pipe ultimately failed, causing deaths, injuries, and property destruction.

Also, if accurate and useable records about the pipe's manufacture and specifications, previous service, and installation had been available at PG&E after the pipe's installation in 1956, even many years later PG&E's integrity management engineers could have determined that the pipe was problematic and needed to be dug up and inspected. But, since there were no records kept, that inspection never occurred and the pipe ultimately failed catastrophically in 2010.

The best available evidence now remaining, strongly suggests that the pipe that failed was salvaged and possibly junked, but then reused. No way exists now to know for certain, because PG&E failed to maintain the very records that would have been dispositive.

2. PG&E violated Cal. Pub. Util. Code §451, for failure to create/retain construction records for 1956 project GM 136471.

PG&E failed to keep complete and accurate construction records for the project GM 136471, the project that installed Segment 180 in 1956, replacing a part of Line 132 that had been installed in 1948. (CPSD Exhibit. 4, Page. 5)

The project file for GM 98015, the 1948 Line 132 project, is missing vital construction records related to the original installation of the portion of the line that was replaced in project GM 136471. (Original construction documents for the section of pipe that spanned the creek are missing from the 1948 Job file for Project GM 98015.) PG&E operated Line 132 at high pressures despite a lack of critical information about the design and construction of Segment 180, placing employees and the general public in danger. The unavailability of construction records for line 132 undermined the safe operation of the line just as missing construction records for other lines diminishes their future safety. In addition, construction records are critical to the analysis of the causes of the San Bruno pipe failure.

3. PG&E violated Cal. Public Utilities Code Section 451, ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for failure to retain pressure test records for Line-132, Segment 180

PG&E failed to retain pressure test records for Segment 180 of Line 132 for the life of the facility. PG&E admits that it has not located records showing that a post-installation pressure test was conducted on Segment 180.

PG&E neglected to create or maintain pressure test records for the Segment 180 installation, and was therefore unable to confirm the integrity of the segment before it failed in 2010. Pressure test records are essential to confirm the integrity of a pipeline, as designed and constructed. (49 CFR 192.505) Pressure test records are basic facility records that a gas transport operator should always retain for the operating life of the pipe. (ASA B31.1.8, Section 841.417 (1955) and 49 CFR 192. 517 (after 1970)) Pressure test records provide basic information and proof that the pipe is fit for service at a specific operating pressure.

PG&E was legally required in 1956 to follow good industry practice to create and retain records of the pressure test, if any, for the life of the Segment 180 pipe. That is a

basic safety practice required by § 451, a good engineering practice, and required by PG&E's commitment to the Commission that it was following good engineering practices as codified by the American Standard of Mechanical Engineers.

4. PG&E violated Cal. Public Utilities Code Section 451, ASME Standards Section B31.8 for lost underlying records to support MAOP of 390 on Segment 180

From 1978 to 2004, PG&E operated Segment 180 of Line 132, at a Maximum Allowable Operating Pressures (MAOP) of 390 psi. PG&E's Pipeline Survey Sheets, GIS and Official MAOP list for pipelines, called Drawing 086868, (See example at P2-963) required a 390 psi MAOP for the part of Line 132 that included Segment 180.

Starting in 2004, and continuing until September 2010, PG&E operated the line at an MAOP of 400 psi. This change violated the law and was unsafe. In 1978 PG&E personnel in the San Francisco Division directed an MAOP of 390 psi for a northern section of line 132 and that lower MAOP should have continued to take safety precedence over the 400 psi established by PG&E under the "grandfather clause" using 1968 data from the Milpitas station.

PG&E operated the pipeline using these values for 26 years and through at least nine engineering reviews. PG&E'S long operation at 390 psi, along with PG&E's history of deficient records, establishes a likelihood that PG&E engineers in the 1970s had good reason, supported by data that no longer exists or remains inaccessible, to set a 390 psi MAOP for Segment 180. PG&E has evidently lost or cannot locate the records which once existed and supported the 390 psi MAOPs for sections of Line 132.

In the absence of the underlying records for the 390 psi, PG&E decided in 2004 to uprate the MAOP of Line 132 to 400 psi. The company operated Line 132 Segment 180 line at a sustained pressure of 400 psi in 2003 and 2009, potentially weakening the defective weld in Segment 180. Had PG&E followed regulations for uprating the MAOP on a line, a hydrostatic test would have been performed[119] and the weld would have failed under controlled test conditions, thus averting the San Bruno explosion.

Regardless of whether the uprating and a test would have prevented the San Bruno explosion, PG&E's actions were patently unsafe.

5. PG&E violated Cal. Public Utilities Code Section 451 for failure to Follow Procedures to Create Clearance Records

On September 9, 2010, the day when an overpressured pipe failed, in San Bruno, PG&E maintenance personnel were performing maintenance on the electronic systems of the fully operating Milpitas Terminal. PG&E personnel did their maintenance without the benefit of a written sequence of steps that would be undertaken in the maintenance procedure. Subsequently, when problems occurred in the electrical system, personnel at Milpitas and in the San Francisco Control Room lacked the records of the maintenance sequence that could have helped them determine and resolve the cause of the problems.

An adequate Clearance Procedure could have prevented the electrical problem that led to the over pressuring of the Peninsula pipelines and, thus, might have averted the San Bruno explosion. At the least, an adequate Clearance Procedure could have made recovery quicker because there would have been a traceable step-by-step record of each change that had been made to the electrical system. The only notes from the electrical procedure performed on September 9, 2010 are lists of numbers scribbled on two pages without context or apparent order,(PG&E Response to DR 3 Q13 atch 1.) written by the contract electrical engineer who was overseeing the work. (PG&E Response to DR 3 Q 13)

6. PG&E violated Cal. Public Utilities Code Section 451 for out-of-date Operations and Maintenance instructions at Milpitas Terminal

The Operating and Maintenance Instructions manual at the Milpitas Terminal was out of date on September 9, 2010, possibly by as much as 19 years. The manual was a useless reference when the emergency occurred on that day and PG&E lost control of its electrical controls and its ability to control rising Segment 180 pressures.

When PG&E schedules work to be performed on its electrical system, especially a system that powers pipeline instrumentation such as automatic and control valves and the data transmission system, it is essential both to have competent and knowledgeable

personnel doing the work, and for those personnel to have all of the relevant maps, drawings, and manuals at hand before beginning the work. All of those records must be up-to-date so that they accurately reflect the system as it exists on the day of the project. PG&E has never verified that the latest Operating and Maintenance Instructions manual was at the Milpitas Terminal on September 9, 2010. PG&E personnel were unable to use the manual to cope with the emergency, because the pipe failed about an hour after PG&E lost control of Line 132 pressure.

7. PG&E violated Cal. Public Utilities Code Section 451, for out-of-date Drawing and Diagrams of the Milpitas Terminal

On September 9, 2010, PG&E personnel at the Milpitas Terminal had access to an outdated map and control room personnel had access to an incomplete diagram of the Milpitas Terminal. (CPSD Exhibit 2, Page 9.) No evidence exists that these personnel had access to any relevant map or diagram that was up to date on the day the emergency occurred. When working to attempt to regain control of pipe pressure by manually opening or closing valves, PG&E personnel needed access to current and accurate drawings. To the extent that on September 9, 2010 the personnel at the Milpitas terminal and the San Francisco control room referred to the piping and instrumentation drawings available at the Milpitas Terminal during that crisis, they were using a drawing that was incomplete and inaccurate. Failure to maintain accurate drawings and diagrams of its facility is inherently unsafe because operators and maintenance personnel rely on the drawings and diagrams as accurate representations of the system when they make routine and emergency operating decisions.

8. PG&E violated Cal. Public Utilities Code Section 451 for no Back-up Software at the Milpitas Terminal

PG&E conducted electrical work at the Milpitas Terminal without appropriate back-up software available for valve controllers on Line 132 segment 180. (CPSD Exhibit 2, Page 10) This represented an unsafe practice. When electrical power was lost, the valve controllers no longer functioned properly to control line pressure.

PG&E's policy and practice, as stated in its Operating & Maintenance Instructions Manual, is to store a copy of back-up software on site at the Milpitas Terminal. Apparently, whatever software was required to restore the controllers was not stored at the Terminal, therefore violating PG&E's own policy and creating a safety risk.

9. PG&E violated Cal. Public Utilities Code Section 451 for unsafe design of Supervisory Control And Data Acquisition System

The data transmission collection and display system for PG&E's gas transmission system is referred to as Supervisory Control and Data Acquisition (SCADA). The SCADA system provides data to the control rooms.

PG&E's SCADA did not provide to PG&E personnel the information needed in the control room and elsewhere to deal effectively with the gas emergency that began after 5PM on September 9, 2010. SCADA did not provide PG&E personnel with sufficient information to determine the best course of remedial action to take.

10. PG&E violated Cal. Public Utilities Code Section 451 for emergency Response Plans too Difficult to use

PG&E's Emergency Response Plans were difficult to use and were a source of confusion for the Control Room operators, likely contributing to PG&E's inability to mount a credible response to the incident on the evening of September 9, 2010. PG&E's emergency plan is very complex and was apparently difficult for personnel to implement during the San Bruno emergency. Emergency Response Plans are useful only if they are written and implemented in a way that makes the information immediately accessible and easy to understand and to follow in situations when events are overwhelming. The plans must be updated regularly so an employee or contractor will not rely on obsolete information or call invalid phone numbers to reach key personnel. PG&E's Emergency Plan failed to support a safe and efficient response to the San Bruno explosion and contributed to a longer than necessary response time to close off the gas so the site could be rendered safe for entry by emergency responders.

11. PG&E violated Cal. Public Utilities Code Section 451 for Operating L-132 in excess of 390 MAOP

Federal regulations implemented in 2004 required PG&E to set the MAOP of a line at the highest operating pressure experienced on the line during the preceding five years. (CPSD Exhibit 4. Page 17) Before 2004, Line 132 had not operated at 400 psi, which was the MAOP PG&E wanted to establish for that line after 2003. PG&E records established an MAOP of 390 psi for a portion of the line and the maximum operating pressure for the preceding five years was 375 psi. The federal law required hydrostatic testing of the line if PG&E uprated it to 400 psi.

Instead of following the applicable uprating rules federal regulations and GO 112, PG&E edited historical documents to change 390 to 400 psi for Line 132. PG&E defends its change in MAOP based upon an alleged PG&E error made by personnel in the 1970s that the company now contends caused it to under-operate Line 132 at 390 psi for more than 25 years.

PG&E then developed a plan to operate Line 132 at 400 psi for 2 hours in 2003 to establish the higher MAOP under the new rules. PG&E repeated the two-hour operation at 400 psi in 2008 (to set the MAOP for the next five years) and planned to continue this process every five years.

Had PG&E hydrostatically tested Line 132 to uprate it in compliance with state regulations, Segment 180 would have been tested to a pressure well above 400 psi, and it would have failed under controlled testing conditions, requiring replacement of the pipe. Instead, when Line 132 was overpressured due to problems at the Milpitas Terminal on September 9, 2010, Segment 180 failed catastrophically, resulting in deaths, injuries and extensive property
destruction.

12. WITHDRAWN

13. PG&E violated the Commission's Rules of Practice and Procedure Rule 1.1 for PG&E's Contradictory Data Responses Regarding Recorded Brentwood Camera 6 Video

PG&E provided CPSD and the Commission with data responses that were contradictory and misleading, and that impeded the investigation of important and relevant issues in this proceeding.

14. PG&E violated the Commission's Rules of Practice and Procedure Rule 1.1 for PG&E's Data Responses Did Not Identify All of the People in Milpitas Handling the Pressure Problem on September 9, 2010….October 10 and December 17, 2011

In several data responses to CPSD PG&E failed to identify all personnel for whom CPSD sought identification. These utility actions can impede CPSD's investigation and compromise the Commission's ability to make a fully informed decision.

15. **Withdrawn**

16. PG&E violated Cal. Public Utilities Code Section 451, ASME Standards Section B31.8, for Job Files Missing and Disorganized

PG&E's job files are the company's primary source of data and information essential to the promotion of system safety. Long before 2010, PG&E's job files created an unsafe condition in PG&E's transmission system. That condition continues today. Many PG&E job files are missing. Some job files contain accounting information but are missing essential engineering information.

PG&E's job files are un-indexed files that contain millions of pages of data. Many jobs have multiple job files in multiple locations. These files often contain different data and information not found in the other files for the same job. Before 2010, these job files were spread over 40 PG&E document locations.

For these reasons and others, it has been impossible for PG&E engineers with safety responsibilities to efficiently and timely use job files to promote safety. This is a systemic problem and violations that will take many years for PG&E to mitigate. Complete correction of the violations is unlikely, because missing or incorrect information cannot always be obtained or rectified except by expensive pipe replacement or testing.

17. PG&E violated Cal. Public Utilities Code Section 451, and ASME Standards Section B31.8, for Pipeline History Records Missing

PG&E created a set of Pipeline History Records, which were the source of the data used to develop its Pipeline Survey Sheets. PG&E says the data from the Pipeline Survey Sheets is the data that was ultimately transferred into the GIS system. Many of the errors found in GIS can be traced to the Pipeline Survey Sheets. However, since PG&E lost or destroyed the underlying Pipeline History Files, it was impossible for PG&E to verify the quality of the GIS data. As a result, PG&E personnel have relied on incorrect GIS data in the day to day operations of the Transmission System.

Pipeline history files were an invaluable asset to PG&E to use to promote safety. These records were capable of increasing safety, and were essential for integrity management, especially considering the state of PG&E's job files. However, PG&E stopped using pipeline history files at some uncertain time, perhaps as early as 1987. PG&E's pipeline safety has suffered for that reason.

18. PG&E violated Cal. Public Utilities Code Section 451, California Public Utilities Act Article II Section 13(b), ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for Design and Pressure Test Records Missing

Since 1955, PG&E has borne a responsibility imposed by law to test the strength of all its newly installed transmission pipes. Since 1955 the law also required PG&E to retain, for the operational life of each installed transmission pipe, the written records and recorded data and graphs of each required strength test.

Since 1955, and until September of 2010, PG&E failed thousands of times either to do the required strength tests, or to retain the strength test records and required data of tests that it conducted. PG&E admits to thousands of failures to retain strength test records that are required by law. Because it failed to retain the data and records, PG&E made it impossible to ascertain whether tests were done, or whether conducted test results were recorded and records were retained, but subsequently were discarded, misplaced, or otherwise lost.

These failures are violations that undermine and diminish the safety of its pipeline system that PG&E owes to the California public, its ratepayers, and to its own employees and contractors. PG&E's failures to test and to maintain test records diminished gas

safety and resulted in a dangerous level of uncertainty about the strength of transmission pipes that continuously transport large volumes of potentially flammable and explosive natural gas through pipes in residential neighborhoods and other populated areas. Violation of strength testing and record maintenance requirements was a factor in the San Bruno tragedy of September 9, 2010, and remains to this day an impediment to maximizing current and future PG&E gas safety at reasonable cost.

19. PG&E violated 49 CFR 192.241 and 192.243, CA Public Utilities Code Section 451, ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for Weld Maps and Weld Inspection Records Missing or Incomplete

PG&E failed to retain weld maps and weld inspection records. Safe operation of high pressure gas transmission pipelines is contingent on good original construction, including good quality welds in the piping. Welds must be adequate to meet the stresses that will occur during normal operations. In addition, if PG&E changes or uprates a pipeline to a higher MAOP, it must have data and records to ensure that the pipe welds are sufficient to serve safely under the higher operating pressure. Thus, historical records of the weld inspections and the weld maps are critical to the ongoing safe operation of the transmission pipelines. Some surviving records of welds in PG&E's transmission lines show that substandard welds were accepted for service, suggesting there may be pipe in the present transmission system that do not meet criteria for safe, ongoing gas transmission service. By failing to retain, or discarding these important weld inspection records, PG&E violated basic engineering and regulatory requirements for safety.

20. PG&E violated Cal. Public Utilities Code Section 451, California Public Utilities Act Article II Section 13(b), ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for Operating Pressure Records Missing, Incomplete or Inaccessible

PG&E violated the law by failing to create or maintain the operating records necessary to ensure that its transmission pipelines are safe to operate at high pressures. Primarily, PG&E is missing years of pressure records required for safe operation of the pipes. The pressure records the company has retained are so inaccessible that they are

essentially unavailable. The impact this has on safety is that integrity management cannot be meaningfully evaluated, pressure cycling evaluations required by the law cannot be accurately conducted, and PG&E may not have done required testing in compliance with the law.

21. PG&E violated Cal. Public Utilities Code Section 451, California Public Utilities Act Article II Section 13(b), ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for Pre-1970 Leak Records missing, incomplete and inaccessible

PG&E's records of transmission pipe leaks before 1970 is inadequate. This hampers assessment of the integrity of its pipes.

22. PG&E violated Cal. Public Utilities Code Section 451, ASME Standards Section B31.8, General Orders 112, 112A, and 112B Section 107 for Post 1970 Leak Records incomplete and inaccessible repair records

Leak record history is critical for transmission pipeline safety, both for immediate attention and repair and for integrity management assessment and decisions. PG&E has an incomplete and inaccessible set of post 1970 leak records.

PG&E has failed to migrate all of its leak records into its current IGIS system, making the set it has difficult to access. (PG&E Response to CPSD Data Request 69, Question 6.) PG&E has also failed to properly map jobs that were necessary to perform leak surveys. (PG&E Response to CPSD Data Request 25, Question 2(i) Supp 02Atch17) In addition, many of PG&E's individual post-1970 leak records are inaccurate and incomplete. (PG&E Response to CPSD Data Request 25, Question 2(i) Supp02Atch02, Page 2-3) Large numbers of leak records that may technically exist are completely unknown and unavailable for PG&E integrity management personnel to review and consider. PG&E also has known for quite some time that its leak records were largely inaccurate and under-recorded. (PG&E Response to CPSD Data Request 25, Question 2(i) Supp02Atch02, Page 2-3.) PG&E has also experienced difficulty checking the accuracy of its leak data. (CPSD Exhibit 55, Pages 7 and 8, and Appendix C. The Bechtel report "Engineering Consulting Services for Pacific Gas and Electric Company", dated January 1984, Job 16253, Revision O 1984 Bechtel Report)

23. PG&E violated Cal. Public Utilities Code Section 451 for Records to track salvaged and reused pipe missing

Before 1970, PG&E commonly reused pipe. PG&E removed the pipe from service and installed this pipe in service elsewhere. After the reinstallation, PG&E could not identify the location of the pipe and its characteristics and specifications. PG&E's failure of records and data has created a system of pipelines that remains unsafe today, and will continue to be so until and unless PG&E identifies with certainty the location of each piece of reused pipe in its system.

24. PG&E violated Cal. Public Utilities Code Section 451for Bad data in Pipeline Survey Sheets and the Geographic Information System

Important pipeline data in PG&E's GIS is erroneous and incomplete, and diminishes safety. The erroneous and incomplete information pertains to a myriad of characteristic – pipe specifications, pipe manufacturer, reused of pipe, weld characteristic or seamlessness, pipe location, MAOP, populations near the pipe, and others. The absence of accurate information greatly impedes pipe safety.

25. PG&E violated Cal. Public Utilities Code Section 451for Use of an Integrity Management Risk Model that uses inaccurate data

Good PG&E data and records are essential to maximize and prioritize gas pipe safety and pipe safety risk. However, PG&E data and records essential to manage the integrity of its gas system are incomplete, inaccurate, and inadequate. Accordingly, PG&E's integrity management model, and the critical prioritization of pipeline risk that is the product of the model, reflect the inadequacy of the data and, thus, are incomplete, inaccurate, and inadequate. As a result, PG&E's integrity management decisions have been skewed and unsafe.

Since at least as early as 1985, PG&E has known that its data and records were incomplete, inaccurate, and inadequate. Instead of addressing this problem and reconstructing the required information and ensuring better quality information from that time forward, PG&E developed an integrity management program that, in effect, dismissed risk associated with missing data, and that developed largely meaningless

assumptions that PG&E deemed to be conservative. In fact, PG&E dismissed the risk of dangers such as those that manifested themselves so terribly on September 9, 2010. Likewise, PG&E's claimed conservative pipe assumptions have also been both wrong and meaningless, and have undermined PG&E's ability to effectively prioritize pipe replacement or other pipeline safety work.

26. PG&E violated Cal. Public Utilities Code Section 451 for 1988 weld failure – no Failure Report

At the time of the San Bruno explosion, PG&E was not aware of a 1988 weld failure on another section of Line 132. During the subsequent investigation, CPSD found that PG&E had repaired a leak on Line 132 that resulted from a manufacturing defect in the longitudinal weld of the pipe. Instead of acting on this report and inspecting similar pipe welds, PG&E lost the report. PG&E's poor recordkeeping practices led to the loss.

Because it lost the report, and the report identified a manufacturing threat to Line 132, PG&E did not include that information in its Integrity management model. Because the report is an engineering record directly relevant to the integrity of PG&E's transmission pipelines, PG&E should have retained it for the life of the facility. Moreover, proper retention and use of the 1988 Weld Failure report could have led to discovery and repair of the bad welds in Segment 180. Thus, the loss of this report is a violation of Public Utilities Code section 451.

27. PG&E violated Cal. Public Utilities Code Section 451 for1963 weld failure – no Failure Report

PG&E failed to retain a weld failure report that could have provided information to its engineers and managers concerning the expected service life and potential integrity of pipe installed in its transmission pipeline system.

28. (Referenced in Opening Brief as Violation A.1.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, General Orders 112, 112A, and 112B Section 107, ASME Standard B31.8 for the lack of the necessary accurate and locatable records essential for safe pipeline operation, due to sub-standard records management practices.

PG&E did not have all of the necessary processes in place to ensure that traceable, verifiable, complete and accurate gas transmission pipeline records and related information was available in a timely manner. Gas transmission pipeline records were widely distributed and poorly controlled across the Division. This led to inefficient and unsafe working practices.

PG&E's systemic, comprehensive and sustained records management failure has resulted in substandard records and poor quality data. Both elements have compromised system safety over many years. A large portion of PG&E's records and data has been and remains missing, inaccurate, incomplete or a combination of these. Many of these records were also untraceable and unverifiable. PG&E did not maintain a definitive and complete master set of job files relating to its gas pipelines, or a definitive index of the location of all job files for all of its jobs. PG&E's job files were duplicative in part or whole and spread across its gas transmission division without any uniform organization. PG&E stored many job files in multiple office locations. When PG&E added records to or made changes to a job file in one location, it did not always make the same changes to other copies of the same job file. As such, the contents of any given job file could vary from location to location, and PG&E could make a decision based upon contents of one job file without reviewing the other variations of it. Because of all of these things, and because records and data are essential for safety engineering, PG&E could not safely operate or maintain its gas transmission pipeline system.

29. (Referenced in Opening Brief as Violation B.1.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451for PG&E's minimal compliance with some of its own retention policies regarding leak survey maps.

PG&E needed to retain each gas transmission record long enough to comply with all requirements. However, some of PG&E's retention requirements to for how long to keep leak survey maps did not comply with the law. Therefore, PG&E did not necessarily have enough information to inform some of its decisions about how to safely operate its system.

30. (Referenced in Opening Brief as Violation B.2.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, General Orders 112A, and 112B Section 107, ASME Standard B31.8 for PG&E's minimal compliance with some of its own line patrol report retention policies.

PG&E needed to retain each gas transmission record long enough to comply with all requirements. However, some of PG&E's retention requirements to for how long to keep line patrol reports did not comply with the law. Therefore, PG&E did not necessarily have enough information to inform some of its decisions about how to safely operate its system.

31. (Referenced in Opening Brief as Violation B.3.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, ASME Standard B31.8 for PG&E's minimal compliance with some of its own line inspection report retention requirements.

PG&E needed to retain each gas transmission record long enough to comply with all requirements. However, some of PG&E's retention requirements to for how long to keep line inspection reports did not comply with the law. Therefore, PG&E did not necessarily have enough information to inform some of its decisions about how to safely operate its system.

32. (Referenced in Opening Brief as Violation B.4.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, ASME Standard B31.8 for PG&E's minimal compliance with some of its gas high pressure test record retention policies violates other requirements.

PG&E needed to retain each gas transmission record long enough to comply with all requirements. However, some of PG&E's retention requirements to for how long to keep gas high pressure test records did not comply with the law. Therefore, PG&E did not necessarily have enough information to inform some of its decisions about how to safely operate its system.

33. (Referenced in Opening Brief as Violation B.5.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, General Orders 112, 112A, and 112B Section 107, ASME Standard B31.8 for PG&E's minimal compliance with some of its record retention policies of transmission line inspections, including patrol maintenance reports, trouble reports and line logs.

PG&E needed to retain each gas transmission record long enough to comply with all requirements. However, some of PG&E's retention requirements to for how long to keep transmission line inspections, including patrol maintenance reports, trouble reports and line logs did not comply with the law. Therefore, PG&E did not necessarily have enough information to inform some of its decisions about how to safely operate its system.

34. (Referenced in Opening Brief as Violation B.6.) PG&E violated 49 CFR, Section 192.13, CA Public Utilities Code Section 451, General Orders 112, 112A, and 112B Section 107, ASME Standard B31.8 for PG&E being aware at all times between 1955 and 2010, of the requirement to retain and maintain certain documents for various lengths of time but failing to implement their practices fully.

PG&E's failure to follow multitudes of its own record retention requirements from 1955 to 2010 exposed PG&E to unsafe working practices and inaccurate pipeline data.

35. (Referenced in Opening Brief as Violation C.1.) PG&E violated California Public Utilities Code Section 451 - In 2007, PG&E was informed that in 1995 it selected the wrong year as the upper limit for its Gas Pipeline Replacement Program (1947 rather than 1948) and for assessing the excavation threat to PG&E's gas transmission pipelines. As a result both line 132 and line 151 were excluded from PG&E's 1995 Gas Pipeline Replacement Program. If line 132 had been included in this program and replaced the San Bruno rupture and fire could have been avoided.

PG&E's 1995 Gas Pipeline Replacement Programs ("GPRP") and associated records incorrectly excluded Lines 132 and 151 for replacement because PG&E failed to identify problematic "Bell Bell with Chill Ring" ("BBCR") and "Bell-Spigot" ("BLSP") joints installed on those lines. PG&E was informed of this mistake via a memo dated March, 2007, which was based upon a review of job estimate files that PG&E apparently did not access when creating its GPRP.

In 1984, PG&E also was informed that BBCR joints were problematic, but still failed to realize it had installed them on Line 132 until receiving the March 2007 memo 23 years later. If PG&E had included Line 132 in its 1995 GPRP, or even acted promptly

in response to the March 2007 memo, it could have avoided the San Bruno rupture and fire on September 9, 2010.

36. (Referenced in Opening Brief as Violation C.2.) PG&E violated California Public Utilities Code Section 451, ASME Standard B31.8. PG&E's lack of the necessary accurate and readily locatable gas transmission line records meant that it was unable to precisely identify which of its pipelines were more prone to extensive damage during some earthquakes and thereby ensure safe pipeline operation.

Certain types and ages of pipe are more susceptible to earthquake damage than others. PG&E did not have an accurate record of all pipelines in the ground,and PG&E also does not know where all of its reconditioned pipe is. Therefore, PG&E has not been able to precisely identify which pipelines are prone to earthquake damage and take the necessary corrective action to replace them. This problem compromises the safe operation of PG&E's gas transmission pipeline system because of the harm that could result to areas near pipes that are prone to damage and failure during a large earthquake.

37. (Referenced in Opening Brief as Violation C.3.) PG&E violated 49 CFR, Section 192.709, CA Public Utilities Code Section 451, General Orders 112, 112A, and 112B Section 107, ASME Standard B31.8 - PG&E failed to maintain a definitive, complete and readily accessible database of all gas leaks for their pipeline system as it failed to migrate all historical leak information from system to system. The incompleteness of critical leak information has contributed to diminished PG&E pipeline safety.

For several reasons, PG&E failed to maintain a definitive, complete and readily accessible database of all gas leaks for their pipeline system. First, PG&E did not migrate all historical leak records from system to system. Consequently, PG&E's current database, IGIS, is missing significant amounts of leak information. Second, PG&E has experienced problems checking and ensuring the accuracy of leak information in IGIS. Third, PG&E failed to properly map many of its jobs on its gas transmission lines, leading to non-compliance leak survey programs and missing leak survey records. Finally, the first three points mean that PG&E's integrity management model was ineffective because PG&E based its decisions upon poor quality, incomplete and inconsistent leak information. Because PG&E's leak records are

incomplete, PG&E has compromised pipeline safety.

Totality of Recordkeeping Violations

CPSD has found a total of 35 violations (because number 12 and 15 were withdrawn), for a number of days exceeding 400,000 days, pursuant to Section 2108 which states that each day a violation is ongoing is a separate offense. For a complete breakdown of the number of days accompanying each violation, see Table 1 below.

Moreover, PG&E provided a list of more than 23,700 pipe segments, constituting approximately 435.7 miles, in the most heavily populated (Class 3 and 4) high consequence areas, for which PG&E has not located a valid a strength test record. (CPSD Opening Brief, P. 166; I.11-02-016, PG&E Response to CPSD and TURN Joint Data Request 01, Question 1.) CPSD's Violation 3 is based upon PG&E's missing strength test records. To be conservative, CPSD's Table 1 only calculates the total number of days for Violation 3 as if PG&E only had one missing strength test record; not 23,700.

PG&E also provided an audit change log showing approximately 2,500 instances of assumed SMYS values of greater than 24,000 psi. (CPSD Opening Brief PG&E Response to Joint DR 1 Q 2, atch 1). The scope of Violation 24 includes data problems in PG&E's GIS system. Again to be conservative, CPSD's Table 1 only calculates the total number of days for violation 24 assuming 1 violation rather than 2,500.

Table 2 provides a table showing the total number of days of Violation 3 and total number of instances of missing strength test records included in that violation. It also shows the total number of days of Violations 24 and total number of instances of assumed SMYS values higher than 2,500 psi.

	I.11-02-016 Table 1: Calculationof Total Days of RecordkeepingViolations				
		Opening Brief	Calculation	Calculatio r	Total
Violation	Description	Start Date	Start Date	End Date	Days
			[A]	[B]	[E]=[C]+[D
1	Salvaged Pipe	1949	1/1/1950	9/9/2010	22166
2	Construction Records	1949	1/1/1950	9/9/2010	22166
3	Pressure Test Records	1956	1/1/1957	9/9/2010	19609
4	UnderlyingRecords relating to MAOP	1978	1/1/1979	9/9/2010	11574
5	Clearance Procedures	8/30/2010	8/30/2010	9/9/2010	10
6	Operations and Maintenance Instructions	Dec 1998	1/1/1999	9/9/2010	4269
7	Drawing and SCADA Diagrams	2008	1/1/2009	9/9/2010	616
8	Back-up Software	2008	1/1/2009	9/9/2010	616
9	Supervisory Control and Data Acquisition	2008	1/1/2009	9/9/2010	616
10	Emergency Response Plans	April 2010	4/1/2010	9/9/2010	161
11	Incidents of Operating Line 132	(see note 1)	1/1/2003	9/9/2010	2808
12	**Withdrawn**	-	-	-	-
13	Brentwood Camera 6 Data Requests	10/10/11 to date	10/10/2011	3/8/2012	150
14	PG&E Data Responses Regarding Personnel	10/10/2011	10/10/2011	1/15/2012	97
15	**Withdrawn**		-	-	-
16	Job Files	1987	1/1/1988	9/9/2010	8287
17	Pipeline History Records	1987	1/1/1988	9/9/2010	8287
18	Design and PressureTest Records Missing	1955	1/1/1956	9/9/2010	19975
19	Weld Maps and Weld Inspection Records	1930	1/1/1931	9/9/2010	29106
20	Operating Pressure Records	1930	1/1/1931	9/9/2010	29106
21	Pre-1970 Leak Records	1930	1/1/1931	9/9/2010	29106
22	Leak Records from 1970 Forward	1970	1/1/1971	9/9/2010	14496
23	Records to Track Salvaged and Reused Pipe	1954	1/1/1955	9/9/2010	20340
24	Data in PipelineSurveySheets and the GIS	1974	1/1/1975	9/9/2010	13035
25	Data in Integrity Management Risk Model	2004	1/1/2005	9/9/2010	2077
26	Missing Report for 1988 Weld Failure	1988	1/1/1989	9/9/2010	7921
27	Missing Report for 1963 Weld Failure	1963	1/1/1964	9/9/2010	17053
A1	Gas Transmission Division RM Practices	1955	1/1/1956	9/9/2010	19975
B1	Leak Survey Maps	16th April 2010	4/16/2010	9/9/2010	146
B2	Line Patrol Reports	1st Sep 1964	9/1/1964	9/9/2010	16809
B3	Line Inspection Reports	6th April 1994	4/6/1994	9/9/2010	6000
B4	PressureTest Records	6th April 1994	4/6/1994	9/9/2010	6000
B5	Transmission Line Inspections	1st Sept 1964	9/1/1964	9/9/2010	16809
B6	Failures to Comply with Specific Record Retention	1955	1/1/1956	9/9/2010	19975
C1	Wrong Year Used as Upper Limit in GPRP	1995	1/1/1996	9/9/2010	5365
C2	Damage	1992	1/1/1993	9/9/2010	6460
C3	Leak Records	1957	1/1/1958	9/9/2010	19244
Total					**400430**
1	Violation 11 addresses three overpressure events on Line 132: December 11, 2003, December 9, 2008 and September 9, 2010				
2	Where the start date of a violation can be clearly defined, it is included in the above calcualtions. Where the actual start date can only be defined to thear nearest month, or year, conservative				

	Table 2: Total Number of Included in Violations 3 and 24.					
I11-02-16		Opening Brief	Calculation	Calculation	Total	Multiple
Violation No:	Description	Start Date	Start Date	End Date	Days	Instances
			[A]	[B]	[E]=[C]+[D]	[I]
3	Pressure Test Records	1956	1/1/1957	9/9/2010	19609	23741*
24	Data in Pipeline Survey Sheets	1974	1/1/1975	9/9/2010	13035	2500**
	*Number of Missing Strength Test Records. Total number yet to be discovered until completion of PG&E's MAOP Validation Effort.					
	**Approximate number of Assumed SMYS values greater than 24,000 PSI.					

C. I.11-11-009 (Class Location OII)

1. PG&E violated 49 C.F.R. § 192.107(b) for using assumed SMYS values above 24,000 psi.

PG&E used pipe segment strength ("SMYS") [24] values that exceeded 24,000 psi for segments that did not have traceable, verifiable, and complete pressure test records in violation of 49 C.F.R. § 192.107(b). PG&E admitted to CPSD's contention that there were 133 such violations for a total of 1,191,662 days. CPSD alleged that the admitted violations were also violations of California Public Utilities Code § 451 for PG&E's failure to "furnish and maintain such adequate, efficient…service, instrumentalities, equipment, and facilities…as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public." PG&E does not dispute the underlying facts of the violations but alleges there are no section 451 violations.

2. PG&E violated 49 C.F.R. § 192.13(c) for failing to follow PG&E's own safety rules and procedures.

PG&E admits that 843 pipeline segments were not accurately classified in violation of federal regulations and, therefore, its own rules for updating and ensuring appropriate class location changes. 49 CFR § 192.13(c) requires PG&E "to maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under federal safety regulations. PG&E admitted to 843 such violations in Data Responses for a total of 6,097,290 days.

[24] "Specified Minimum Yield Strength" (SMYS), 49 C.F.R. § 192.3.

3. PG&E violated 49 C.F.R. § 192.609 for failing to make class studies for locations that increased in class.

PG&E admits that it did not perform a class location study under Section 609 for the 172.1 miles of transmission pipe that changed up in class. PG&E admits to 224 such violations for a total of 1,592,381 days.

4. PG&E violated 49 C.F.R. § 192.613 for failing to perform continuing surveillance of its natural gas transmission pipeline system.

PG&E's written pipeline patrol procedures do not reference continuing surveillance regulations and do not discuss procedures for continuing surveillance. (See: Class Location Report, May 25, 2012 at 52.) PG&E admits that it violated 49 C.F.R. § 192.613 requiring that "[e]ach operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions." (*Id.* at 53.) PG&E admits to 677 such violations for a total of 4,934,360 days.

5. PG&E violated 49 C.F.R. § 192.619 for operating pipeline segments at pressures greater than allowed under this federal safety standard setting the Maximum Allowable Operating Pressure for steel pipe.

PG&E reported on April 2, 2012 that 58 segments were operating at MAOPs inappropriate (non-commensurate) for their class location. 42 of these 58 non-commensurate segments were segments that had experienced a class change up. The remaining 16 segments did not go up in class but were determined to be operating at pressures inappropriate at their existing class. CPSD also notes that PG&E had five additional segments that were operating at MAOPs inappropriate for their stated class locations. PG&E admits to 63 such violations for a total of 480,918 days.

6. PG&E violated 49 C.F.R. §§ 192.605 and 192.709(c) for failure to adequately maintain pipeline patrol records.

PG&E admits that it has not patrolled or has no patrol records for at least 100 miles of its transmission pipeline system. This failure to retain "each patrol record…for at least 5 years or until the next patrol…whichever is longer" constitutes

admissions of violations of 49 CFR § 192.709. PG&E admits to 898 such violations for an undefined period of time exceeding five years.

III. DISCUSSION

A. Statutory Authority

The Commission has been certificated by the Office of Pipeline Safety, an office of the U.S. Department of Transportation (DOT) under 49 U.S.C. §60105, and the Commission enforces the DOT's minimum federal safety standards for pipeline facilities transporting natural gas federal pipeline safety regulations contained in 49 CFR Part 192, *et seq*. As the Commission explained in its D.78513 (1971), pp. 1-3, pursuant to its constitutional and statutory mandate, the Commission created the first version of General Order (GO) 112 in 1960 (effective July 1 1961) governing natural gas pipeline safety. The Commission subsequently revised GO 112 on two occasions during the 1960s (i.e., GO 112-A and GO 112-B). When the DOT's minimum federal safety standards (49 CFR Part 192) went into effect on November 12, 1970, the Commission adopted these minimum federal safety standards in its Resolution No. G-1499, which also was effective on November 12, 1970. The Commission approved General Order (GO) 112-C in 1971, which adopted the federal pipeline safety rules in 49 CFR Part 192. The Commission subsequently adopted General Order 112-E in order to automatically incorporate all revisions to the Federal Pipeline Safety Regulations, 49 CFR Parts 190, 191, 192, 193, and 199. Therefore, references to violations of 49 CFR Part 192, are enforceable by the Commission, because it had to adopt the minimum federal pipeline safety regulations in order to become certificated pursuant to 49 U.S.C. §60105(a). The Commission enforces these regulations using its own enforcement mechanisms, such as Public Utilities Code Section 2107 and 2108 or through its injunctive powers.

1. Fines; Public Utilities Code Sections 2107 and 2108

Public Utilities Code Sections 2107 and 2108 state that failure of a public utility to comply with any provision of any order, decision, decree, rule, direction, demand, or requirement of the commission, is subject to a penalty of between $500 and $50,000 for

each offense, per Section 2107. For violations that are ongoing, each continuing day is a separate and distinct offense, per Section 2108. From 1993 to 2012, the range of fines in Section 2107 was up to $20,000 per day; prior to that, the upper range was $2,000 per day. Section 2108 has not changed. As summarized above, CPSD has proven more than one hundred serious violations, most of which are lengthy, continuing violations. CPSD does not recommend a fine, but a penalty in the form of remedies of $2.25 billion.

The Commission stated:

> The purpose of a fine is to go beyond restitution to the victim and to *effectively deter further violations* by this perpetrator or others. For this reason, fines are paid to the State of California, rather than to victims.
>
> Effective deterrence creates an incentive for public utilities to *avoid violations*. Deterrence is particularly important against violations which could result in public harm, and particularly against those where severe consequences could result. To capture these ideas, the two general factors used by the Commission in setting fines are: (1) *severity of the offense* and (2) *conduct of the utility*. These help guide the Commission in setting fines which are proportionate to the violation.
>
> (Emphasis added. D.98-12-075; 1998 Cal. PUC LEXIS 1018, *54.)

In view of the magnitude of the offenses, it is impossible to determine an appropriate fine, because there is no fine large enough to replace human life. Since restitution has already been made or will be made through a separate process, the Commission has an opportunity to impose a penalty on PG&E in the form of directed remedies of a specified amount that will serve to both deter further violations by PG&E or other utility companies and mandate the required work be done to PG&E's gas transmission system to ensure safety at shareholders expense. In determining the amount of the penalty the Commission should consider the severity of the offense and the conduct of the utility.

In determining the severity of the offense, there are several considerations. The most important consideration is whether there was physical harm as a result of the violation. Violations which "caused actual physical harm to people or property are

generally considered the most severe." (*Ibid.*) A second important consideration is economic harm to the public, which includes "any unlawful benefits gained by the public utility." (*Ibid.*) The size and scope of the violations are also factors to consider in determining the severity of the offense(s). (*Ibid.*)

The public utility's conduct in (1) preventing the violation, (2) detecting the violation, and (3) disclosing and rectifying the violation are also important considerations. (*Ibid.*)

It is important to remember that the public utility is responsible for the acts of all its officers, agents, and employees. In other words, any act by an employee within the scope of his or her employment is an act by the public utility. This is important to consider when PG&E alleges that it did not know that its own workers installed defective pipe. Pursuant to Section 2109:

> In construing and enforcing the provisions of this part relating to penalties, the act, omission, or failure of any officer, agent, or employee of any public utility, acting within the scope of his [or her] official duties or employment, shall in every case be the act, omission, or failure of such public utility.

The financial resources of the utility should be considered as well. Some California utilities are among the largest corporations in California and others are modest, one-person operations. The Commission pointed out that "What is [an] accounting rounding error to one company is annual revenue to another." (*Ibid.*) The Commission typically adjusts penalty levels to achieve the objective of deterrence, based on the utility's financial resources.

The Commission recognizes that it must adjudicate a "wide range of cases which involve sanctions, many of which are cases of first impression." (*Ibid.*) The outcomes of these cases are not usually directly comparable. (*Ibid.*) To the extent possible, however, the Commission will look for "comparable factual circumstances" in prior decisions. (*Ibid.*)

Finally, the Commission will consider the public interest. Harm caused by the offense "will be evaluated from the perspective of the public interest." (*Ibid.*) As a

result, the package of sanctions should be specifically tailored, including any penalty, to the unique facts of the case. (*Ibid.*)

CPSD's application of these principles to determining the penalty amount is as follows.

B. Severity of the offense

The most important consideration is whether people were physically harmed by the violations. (*Ibid.*) Also very important is the economic harm caused by the violations. (*Ibid.*) Violations that cause extensive physical injuries and severe damage to property are by definition the most serious, and call for the highest level of penaltys. Both factors are present and discussed below.

1. Physical harm

PG&E does not dispute the basic facts regarding the physical injuries caused by the San Bruno explosion. Eight lives were lost, 58 people injured, 38 homes destroyed, moderate to severe damage to 17 homes, and minor damage to 53 homes. However, due to the size of fire and the intense heat, the physical injuries were especially severe. People suffered horrible injuries, incinerated in their own homes.

CPSD obtained statements from victims to demonstrate the severity of the injuries to life and property.

a) Declaration of Susan Bullis

On the evening of September 9, 2010, Susan Bullis was in a nurses' meeting in Sunnyvale, California. Her husband, son, mother-in-law, and family dog were at home. On that night, Susan Bullis saw her house engulfed in flames on the news on television. Here is her experience in her own words:

> I learned while I was at my work meeting that there had been an explosion and fire in our neighborhood. I saw pictures of our house engulfed in flames on the television, and I noticed that my husband's truck was parked outside our home, and my mother-in-law's car was parked in the driveway. I knew in my heart that my family was inside that burning home.

> I remember the next few days and weeks as a hellish blur. I remember meeting the coroner at the temporary home where I was staying in South San Francisco, as she swabbed my cheek to take a DNA sample so that they could identify the bone fragments they had found as my husband and my son. I remember learning from the coroner that my son's remains were so badly charred, that they could not identify his body from the DNA sample I provided. I remember dreaming that my son was alive, and the brief moment when I woke up and believed it to be true, only to remember the next moment that he was gone, and being crushed by that realization all over again. I remember raw pain, and grief more palpable and overwhelming than I had known was possible. I remember the sheer hopelessness I felt.
>
> On September 9, 2010, I lost my husband, my son, my mother-in-law, my dog, my house, and everything I owned. Dealing with any one of those things would be extremely difficult for any person. Dealing with all of that loss at once is more than any person should have to bear in a lifetime.
>
> Every day is a struggle for me. I will miss my family every minute for the rest of my life. There is an emptiness inside of me that I have learned will never be filled. PG&E took my family away from me, and there is nothing that anyone can ever do that will ever get them back.

b) Declaration of Betti Magoolaghan

On the evening of September 9, 2010, Betti Magoolaghan was sitting down to dinner at her home in San Bruno with her three children. She was 8.5 months pregnant with her fourth child, and her husband was not yet home from work in San Francisco. She describes what happened next:

> Suddenly, we heard an explosion and saw the towering inferno just outside our home.
>
> I scooped up my younger children and took Charlotte's hand and ran as fast as I could. We did not have time to get dressed or even put on shoes. I ended up carrying the children nearly one mile to safety, as the fire burned all around us.
>
> As a result of the fire, my daughter Charlotte sustained serious and painful blisters on the bottom of her feet due to fleeing barefoot from the fire. My daughter Gabriella suffered increased intermittent extropia as a result of the fire. My son lost his voice for an entire

week after the fire, as a result of screaming in terror when the explosion occurred and crying for hours thereafter.

My family's home and almost all of our possessions, including wedding photographs, wedding gifts, children's artwork, and souvenirs from China for our adopted daughter, were all destroyed in the fire. My family was displaced for 16.5 months as a result of the explosion, and only just moved back to our home, which we decided to rebuild.

I, as well as my family, have suffered tremendously from this incident. In addition to having to flee for my life, I have suffered from Post-Traumatic Stress Disorder, insomnia, and acute stress as a result of the explosion. We, especially my children, have had and continue to have trouble sleeping and concentrating, and experience nightmares and flashbacks.

c) Declaration of Robert Pellegrini

Robert Pelligrini was at home with his wife in San Bruno on the night of the explosion. He describes was happened next:

We had just finished dinner when we heard an explosion and saw the towering inferno just outside our home. My home was instantaneously engulfed in flames. All four of us ran outside through the backyard to escape the fire.

We heard other families screaming attempting to escape the fire. Knowing it was going to be extremely hot, I attempted to tum on a garden hose to soak our bodies before attempting to further retreat. However, there was no water pressure.

When my family made a run for it, I had lost my brother Edward. I thought I lost my brother in the fire. We were reunited later that evening.

My family's home and all of our possessions, including items passed down from my now deceased parents were all destroyed in the fire. My family is still displaced as a direct result of the explosion. We have decided to rebuild our home and one and a half years later, we are still living in someone else's home as the rebuild project has not been completed.

I, as well as my family, have suffered tremendously from this incident. In addition to having to flee for my life, I have been diagnosed with Acute Traumatic Stress Disorder and Post-Traumatic Stress Disorder. I have had and continue to have trouble sleeping

> and concentrating at work. Photographs of not only my and my wife's life, but that of my parents and son have all been destroyed.

In addition to the tragedy in San Bruno, due to PG&E's inadequate recordkeeping as reflected in the Recordkeeping OII, and PG&E's failure to properly classify locations in the Class Location OII, other communities have been threatened as well.

Consideration of the physical harm caused by PG&E demands only the very highest level of fines per day - $2,000 per day for each violation prior to 1993; and $20,000 per day for each day thereafter.

2. Economic harm

Consideration of the economic harm includes both the harm caused to people's property, and also the benefits gained by the utility. The Commission stated that economic harm includes "the amount of expense which was imposed upon the victims as well as any unlawful benefits gained by the public utility." (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *54.)

CPSD has calculated the unlawful benefits gained by PG&E as a result of cutting back on safety-related expenses, deferring needed maintenance, reducing safety-related workers, and choosing less effective pipeline inspection methods. Between 1999 and 2010 (the years examined by CPSD), PG&E's gas transmission and storage (GT&S) revenues were at least $*435 million* higher than the amounts needed to earn its authorized returns. (CPSD-1, p. 133; CPSD-170, pp. 5, 9). Stated another way, between 1999 and 2010, PG&E's actual revenues for its GT&S exceeded actual revenue requirements by at least $435 million. (CPSD-170, pp. 5, 10).

PG&E's missing and inaccurate records contributed to the San Bruno explosion. There is ample evidence in the Recordkeeping investigation to support a finding that PG&E has known at least since 1984 that its safety-related gas transmission records were incomplete and inaccurate. (I.11-02-016 CPSD Exhibit. 8, Attachment 108 (108_Redacted.pdf))

After the San Bruno explosion, the NTSB immediately ordered PG&E to determine "the valid maximum allowable operating pressure" for its natural gas

transmission lines "in class 3 and class 4 locations that have not had a maximum allowable operating pressure established through prior hydrostatic testing." (NTSB Safety Recommendations P-10-2 and P-10-3; CPSD-1, p. 2.) In a separate proceeding designed to require PG&E to "continue its work towards becoming a safe natural gas transmission system operator", the Commission mandated pressure testing and replacement of pipeline, installation of 228 automated valves, and upgrades to 199 miles of pipeline to allow for in-line inspection. (D.12-12-030; 2012 Cal. PUC LEXIS 600, *27.) The project to locate missing records and testing and replacing aging pipeline is referred to as the Pipeline Safety Enhancement Plan (PSEP). Phase I of the PSEP will cost "$818.7 million during 2012, 2013 and 2014" (id., *124), and unknown additional millions in Phase II.

CPSD did not calculate the exact amount of economic damages suffered by the people of San Bruno. However, the fact that "economic harm may be difficult to quantify does not itself diminish the severity or the need for sanctions." (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *54.) The size of the economic harm to the victims was doubtless enormous – total or partial destruction of 108 homes, incinerating the contents of people's lives. The severity of the economic harm to the victims, including the unconscionable amount of money that PG&E profited by reducing safety-related expenses, calls for the most severe penaltys imposable under the law.

3. Size and scope of the violations

The size of the explosion is well-documented, but what is especially troubling is the scope of the violations. The cause of the explosion was not merely a missing seam weld on a bad section of pipe. No, the causes were much broader in scope.

For Line 132, CPSD discovered that PG&E was missing records for pipeline wall thickness; pipe manufacturer; depth of ground cover; yield strength values; type of pipe; and pressure test history. (CPSD-1, p. 32; CPSD-9, p. 61.) As a result, PG&E is required to test 783 miles of pipeline, and replace 186 miles of pipeline. (D.12-12-030; 2012 Cal. PUC LEXIS 600, *124.)

PG&E's Phase I PSEP work to test and replace its pipeline began in 2011 and will continue until at least 2014. Phase II of the PSEP will continue on for many more years, costing billions of dollars. The scope of the violations means that PG&E will be doing remedial work for *decades*, much of it at the expense of ratepayers.

CPSD identified 11 violations in the construction of Segment 180 in 1956, that went undetected (so PG&E claims) and unremediated for *54 years*. PG&E's Integrity Management (IM) program was flawed since its inception in 2003. For *8 years* prior to the explosion PG&E's IM program unlawfully engaged in pressure spiking to avoid testing; failed to gather and consider leak data; failed to evaluate cyclic fatigue; failed to use conservative values for missing data; failed to consider known defects such as DSAW and ERW pipe; and failed to check the accuracy of its GIS data.

The scope of the violations goes well beyond Segment 180 in San Bruno, and Line 132 in the peninsula. The violations are so pervasive that the safety of PG&E's *entire system* is in question. PG&E's safety culture failed not just on Segment 180, but on every gas pipeline in its system. Thus, as illustrated by D.12-12-030, PG&E is now on a "permanent safety journey" that will take "decades" to remediate the "inherent danger to the public created by a natural gas transmission and distribution system" that was flawed. The penaltys should reflect the magnitude of the mistakes made by PG&E.

In the Recordkeeping OII, pervasive recordkeeping violations also place the safety of Line 132, and PG&E's entire system in question. Of the 35 recordkeeping violations now asserted by CPSD, 33 use California Public Utilities Code Section 451 as a basis, the provision of the Public Utilities Code which explicitly requires PG&E to "promote the safety. . .of its patrons, employees, and the public". Of the 33 violations based upon Section 451, 25 began prior to 2000. Additionally, 10 of the recordkeeping violations are of federal laws, including 49 CFR Section 192, another safety based regulation, as a basis. Also, nine of the CPSD recordkeeping violations use Commission General Order 112, a safety based regulation, as a basis. Table I is a spreadsheet that shows the duration of each of the 35 CPSD violations.

Several violations are particularly illustrative of the magnitude of the scope of the recordkeeping violations. Violation A1 includes the fact that as of August 30, 2012, PG&E provided a list of more than 23,700 pipe segments, constituting approximately 435.7 miles, in the most heavily populated (Class 3 and 4) high consequence areas, for which PG&E has not located a valid a strength test record. (CPSD Recordkeeping Opening Brief, p. 166; I.11-02-016, PG&E Response to CPSD and TURN Joint Data Request 01, Question 1.) Some pipe segments on this list were installed as early as 1952. (Ibid.) PG&E has acknowledged that this list is still in progress. (Ibid.) Therefore, this number could be significantly larger by the time PG&E completes its MAOP validation effort.

C. Conduct of the utility

The second category of factors is the conduct of the public utility in relation to the violations. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *57.) It is important to consider the utility's conduct in (1) preventing the violation, (2) detecting the violation, and (3) disclosing and rectifying the violation. (*Ibid.*)

1. The Utility's Actions to Prevent a Violation

The explosion in San Bruno was *entirely preventable.* Prudent utilities should take reasonable steps to ensure compliance with applicable laws. (*Id.*, at *58.) Public Utilities Code Section 451, and its predecessor has been in effect since 1909 (half a century prior to the installation of Segment 180), is a broad and general requirement for utilities to create and follow safe operating practices. Section 451 is informed by the industry standards and guidelines that have existed for decades. When Segment 180 was constructed and installed there were industry standards in place; standards which PG&E failed to follow. Had PG&E followed the industry standards, it could have caught its mistakes and prevented the explosion from occurring.

In so many ways, PG&E failed to prevent the violations from occurring. These missed opportunities are described in CPSD's Opening and Reply Briefs on violations in the three OIIs. For example, PG&E could have used pipe that met the minimum yield

strength prescribed by the specification under which the pipe was purchased, instead of scrap pipe; it could have conducted a visual examination of the pipe and its welds, which would have revealed the missing and defective welds; it could have tested Segment 180, which would have caused the pups to fail; it could have kept records showing the existence of the pups, which was required by the law, good engineering practice, and common sense; it could have designed an IM program that had a detailed and thorough knowledge of each covered segment; it could have gathered and considered leak reports; it could have used conservative values for missing data; it could have evaluated potential threats such as cyclic fatigue or DSAW pipe; it could have detected missing or obviously inaccurate data sets when it was transferring older pipeline data into its GIS.

But most importantly, the evidence points to a corporate culture that valued profits over safety. PG&E failed to keep track of what it was doing, and made significant cuts to its safety related personnel and tasks, while at the same time paying large dividends and bonuses. PG&E's corporate culture viewed safety regulations as expenses to be avoided rather than as good utility practices that ensure safety. However, managing a gas system to the brink of regulatory noncompliance and accepting an elevated risk of system failures is unacceptable. Regulations are not goals, they are absolute requirements. Systems should be engineered so that those requirements are met. The cost of avoiding compliance has now greatly exceeded any profits PG&E might have realized by failing to respect those limits in the first place.

It is especially tragic that PG&E began a pipeline replacement plan (GPRP) in the 1980s that would likely have prevented the tragedy. However, in about 2000 PG&E discontinued the GPRP and replaced it with a risk management program. (CPSD-168, p. 6-13.) Instead of replacing 165 miles of HCA transmission pipeline from 2000-2010, PG&E replaced only 25 miles. (*Ibid.*) We now know that PG&E's risk management plan was deeply flawed in that PG&E did not gather and integrate the necessary data to do proper risk assessment, did not consider leak histories for its aging pipeline, did not consider cyclic fatigue, and ignored potential threats from older DSAW pipeline. Not only did PG&E not prevent the explosion, it discontinued the project that could have

prevented it, even though it had already been *fully funded by the Commission.* (D.92-12-057 (1992) 47 CPUC 2d 143, 234.)

From a recordkeeping perspective, PG&E could have partially prevented recordkeeping violations A1 and 24 if it had not systematically and illegally assuming SMYS values of more than 24,000 psi, which it did at least 2,500 times.[25] (CPSD Opening Brief PG&E Response to Joint DR 1 Q 2, atch 1).

2. The Utility's Actions to Detect a Violation

PG&E claims to be ignorant of the dangerous condition that existed on Segment 180. It is completely unacceptable (if true) that PG&E did not know about the dangerous flaws in Segment 180. As a public utility, PG&E is *required to know.* The Commission has stated that it "expects public utilities to monitor diligently their activities" to detect violations. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *58.) Deliberate wrong-doing will be considered an aggravating factor. (*Ibid.*)

PG&E's (claimed) ignorance is inexcusable, because there are requirements for visual examination of the pipeline prior to installation, post-installation testing, threat identification, leak/rupture data gathering, etc., that should have led to the discovery of the missing records, or the pups themselves.

So many things could have broken the chain of negligent ignorance that led to the explosion. It is highly implausible that PG&E maintained actual ignorance from 1956 to 2010; but if so, it is legally and morally reprehensible. PG&E could have detected the violations in Segment 180 by maintaining accurate records of what it was doing. It could have detected the missing welds by conducting a visual examination or by testing as required by law. When transferring the data to GIS, it could have investigated the missing pressure test data or the obviously wrong 30 inch seamless designation. It could have selected a testing method that was capable of detecting seam flaws, because it knew

[25] In the SB OII, CPSD's opening brief at page 154 had a typo which said that PG&E assumed SMYS value of more than 24,000 psi more than 25 times. In fact, PG&E has made this incorrect assumption in more than 2,500 instances.

(or should have known based on documents in its possession) that DSAW pipe from Consolidated Western had seam issues, and because several leaks had been discovered on the seams of DSAW pipe in Line 132.

Moreover, although PG&E now claims that it did not know about the installation of the flawed pup sections in Segment 180, PG&E does not dispute that the installation was performed by PG&E workers, not outside contractors. (CPSD-1, p. 15.) It would have been clear to the PG&E workers who constructed Segment 180, when they obtained the pup sections, brought them to the job site, and welded them into place, that the pup section were not completely welded. Pursuant to Public Utilities Code Section 2109, PG&E is legally responsible for the acts or omissions of its employees in failing to detect and prevent the flawed pup sections from being installed.

As documented by this investigation and made abundantly clear by PG&E, PG&E did not detect the violations prior to the explosion. The reason PG&E did not detect the violations is also clear – it repeatedly and continuously made decisions that compromised safety, in order to make an extra buck.

The Recordkeeping OII proceeding provides another example in which PG&E failed to detect a violation, even when explicitly informed of it twice over several decades. PG&E's 1995 Gas Pipeline Replacement Programs ("GPRP") and associated records incorrectly excluded Lines 132 and 151 for replacement because PG&E failed to identify problematic "Bell Bell with Chill Ring" ("BBCR") and "Bell-Spigot" ("BLSP") joints installed on those lines. In 1984, PG&E was first informed that BBCR joints were problematic by a Bechtel Report, (CPSD Exhibit. 8, Attachment 108, Page 11. (108_Redacted.pdf)) but it still failed to realize it had installed them on Line 132 until receiving a March 2007 memo 23 years later. (CPSD Exhibit.6, Page 6-50, Lines 26-28; PG&E Response to CPSD Data Request 44, Question 1,Atch 32, Page 2). The March 2007 memo, which was based upon a review of job estimate files that PG&E apparently did not access when creating its GPRP (Ibid.), informed PG&E of the mistake it should have discovered based upon the 1984 information. If PG&E had included Line 132 in its 1995 GPRP based upon the 1984 Bechtel Report, or even acted promptly in response to

the March 2007 memo, it could have avoided the San Bruno rupture and fire on September 9, 2010, and would have detected the problem that was the basis for Recordkeeping Violation C1.

3. The Utility's Actions to Disclose and Rectify a Violation

When a public utility is aware that a violation has occurred, the Commission expects the public utility to promptly bring it to the attention of the Commission. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *58.) Violations which physically endanger the public must be immediately corrected and thereafter reported to the Commission staff. (*Ibid.*) However, in this case the violations came to light subsequent to the explosion in San Bruno. PG&E did nothing to disclose them to the Commission, or rectify them in advance.

Because of the size and severity of the violations that came to light after the explosion, PHMSA and the Commission did not wait for PG&E to take action, but began taking immediate steps to rectify the violations, such as ordering PG&E to immediately lower the operating pressure on its pipelines, and to immediately conduct a search for all design, construction, inspection, testing, maintenance, and other related records.

PG&E now attempts to take credit for the actions it has taken to rectify the violations. PG&E touts its Pipeline Safety Enhancement Plan (PSEP), but in fact the PSEP is mandated by R.11-02-019 and D.12-12-030. PG&E states that it has developed a plan that is consistent with best practices in the gas industry and with federal pipeline safety statutes. Both the R.11-02-019 and SB 705 (Leno, Ch522/2011) required PG&E to develop the plan.[26]

The PG&E workers who constructed Segment 180 have passed away, or cannot be located because PG&E has lost the records. PG&E's purchase records for the pups cannot be found. (CPSD-1, p. 65.) PG&E's testing records for Segment 180 cannot be found. (*Ibid.*) We cannot know what was in the mind of the workers in 1956 when they

[26] CPSD-5, p. 63.

obtained and installed the flawed pups, and welded them into place in Segment 180. But we can say with certainty that PG&E *should have* known about the flawed pups; and thus, PG&E should have disclosed and rectified the mistake prior to the explosion, but did not. CPSD acknowledges that there is no direct evidence that PG&E intended to violate safety regulations; but for all intents and purposes, PG&E's actions were deliberate, in that it is highly implausible that PG&E remained *actually* ignorant of the lack of testing, design flaws, or missing records, in light of the warnings from high level employees.

PG&E's GIS was missing obviously missing data such as leak history and past pressure tests for Line 132, but PG&E ignored warnings by its engineers and management that Line 132 was missing such records. (CPSD-5, pp. 63-64 and CPSD-167, p. 885.) PG&E inaccurately identified the cause of a longitudinal seam leak on Line 132, identified on October 27, 1988. (CPSD-9, p. 109.) PG&E stated that when it transitioned to its GIS in the late 1990s, only open (that is, unresolved) leak information was transferred. Closed leak information—such as the October 27, 1988, leak, which had been repaired—was not transferred to the GIS. (CPSD-9, p. 109.) Apparently, PG&E did not keep all the leak records in GIS, but instead leak records were kept in hardcopy form in local PG&E field offices.[27] If the records were kept in hardcopy only, in local field offices, and not in GIS, this is strong evidence that the records were not integrated and considered. These are not the actions of a utility that is seeking to "immediately correct and report" violations.

The Recordkeeping OII proceeding also shows an example in which PG&E failed to disclose critical information about its GIS that was the basis of a violation. On July 19, 2013 CPSD and TURN jointly asked PG&E to account for and describe each error. CPSD Opening Brief at P. 177; CPSD Exhibit 64; PG&E Response to CPSD-TURN Joint Data Request 01, Question 02, Supp. 01.) PG&E initially responded that it "does not maintain all errors in information listed in GIS. . .in a way that the requested data can

be readily extracted." (Ibid.) Months later, on October 3, 2012, toward the end of the first round of hearings in this case, PG&E for the first time informed CPSD of, "An audit change log reflecting changes to the current GIS between September 10, 2010 and October 3, 2012. ." (Ibid.) Moreover, it took PG&E until the very end of the second round of hearings, on January 18, 2013, to produce the audit change log version that showed the 2,521 instances of assumed SMYS values greater than 24,000 psi. PG&E did not disclose this information in its initial data response to CPSD and TURN, even when asked directly. Also, the fact that PG&E has assumed high SMYS values in so many instances suggests a systematic practice and a failure to rectify this ongoing violation.

D. Financial Resources of the Utility

The Commission typically adjusts penalty levels to achieve the objective of deterrence, based on the utility's financial resources. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *58.) To have any deterrent effect, the size of the penalty must account for two things: one, that PG&E is one of the largest utilities in the nation with operating revenues over $15 billion a year and profits approaching $1.0 billion per year[28]; and two, that PG&E's gas transmission and storage services profited by $435 million (over the time period examined by CPSD)[29] as a result of underspending on safety-related items.

1. Overland Consulting's Analysis

CPSD retained financial experts Overland Consulting in order to evaluate PG&E's ability to pay large penaltys. Overland provided "an objective examination, of PCG's financial health" as well as its "estimate of [PG&E's] ability to raise equity capital

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(continued from previous page)
[27] PG&E OB, p. 65.

[28] PG&E's Annual Financial Reports are public. For 2012, PG&E operating revenue was $15.04 billion, with net "Earnings from operations" in the amount of $861 million. http://www.pgecorp.com/investors/financial_reports/

[29] The beginning period of the audit was 1996 to provide the background to the unbundling of the transmission services and rates from PG&E's general rate cases as a result of PG&E's Gas Accord settlement, which the Commission adopted on August 1, 1997. The ending period of the audit is 2010 because the focus is the events leading to the San Bruno explosion. (CPSD-168, pp. 1-3, 2-7.)

sufficient to fund a CPUC imposed fine." (Joint-51.) Overland's analysis used PG&E's own financial documents, obtained from PG&E.

Overland determined that PG&E could raise $2.25 billion in equity to pay fines and remedies. (*Id.*, p. 13.) It is important to note that this is additional equity to the equity already raised by PG&E in 2012. PG&E was planning to issue $600 million in additional equity in 2012, including $300 million to fund gas-related penalties and unrecoverable pipeline related work. (*Id.*, p. 10.) In other words, at least $300 million of the work performed by PG&E in 2012 is already accounted for in Overland's estimate.

Overland analyzed PG&E's ability to raise equity to pay fines, rather than some other method such as reducing dividends, because PG&E's "senior management has consistently stated that it plans to fund potential fines by issuing equity." (*Id.*, p. 1.) The most important issue in this analysis for CPSD is protecting ratepayers from unintended bad consequences as a result of a large penalty; for example, PG&E's credit rating could suffer and its borrowing costs could increase if the penalty was excessive.

Overland examined the following factors that are impacted:

- Comparable company analysis, which included Price to Earnings and Price to Book Ratios, Debt to Equity and Current Ratios, and Dividend Yields;
- Credit ratings, which looked at Moody's and Standard and Poor's credit ratings for PG&E;
- Financial Impact of Pipeline Safety Enhancement Plan; and
- Third Party Litigation

It is also important to note that Overland's estimate takes no position with regards to the size of an appropriate penalty. Overland did not analyze whether PG&E *should* pay a fine, or how much. Overland's analysis does not include an examination of the severity of the violations, or the conduct of the utility to detect and prevent violations.

Overland's analysis assumed that PG&E's dividends remained at the $1.82 per share level currently projected by the company. (*Id.*, p. 10.) In other words, Overland's recommendation does not impact PG&E's dividends in any way. While reducing dividends is another option, that was not Overland's focus.

Overland concluded that $2.25 billion was appropriate because remaining below that threshold would preserve the existing financial condition of PG&E without unintended harsh consequences. Specifically, with this amount of new equity "PCG's payout ratio would move from a base case of 57 percent to a 65 percent dividend payout ratio, and from a price to book ratio of 1.5 to 1.3." (*Id.*, p. 11.) The increase in the payout ratio is well within the company's payout ratio targets. The drop in PCG's price to book ratio would still keep the company within the peer group range and would not be exceptionally low for the industry. In fact, a 1.3 price to book ratio would still be equal to or greater than fourteen of the sixty electric and natural gas companies in Overland's comparable company analysis. (*Ibid.*)

Thus, CPSD believes the recommended penalty amount set forth above, while harsh enough to have a deterrent effect, is not so harsh that PG&E's credit worthiness would suffer to the point where ratepayers would be negatively impacted.

2. Wells Fargo Analysis

PG&E retained its own outside analyst, from Wells Fargo, to examine PG&E's ability to pay fines and to rebut Overland. (Joint 66.) Despite the fact that PG&E's senior management has publicly stated that PG&E's preferred method of paying for the consequences is to raise additional equity, and Overland's financial analysis followed this method, Wells Fargo's analysis took a different perspective. Wells Fargo stated that analyzing "PCG's equity capacity is impractical and inappropriate for the issue they are analyzing." (*Id.*, p. 1.) Instead, the Wells Fargo analyst focused on the expectations of investors and market analysts with regards to the size of the fine. The Wells Fargo analyst found that the "mean expected fine" is $477 million. (*Id.*, p. 20.)

Similar to Overland, Wells Fargo did not analyze the appropriate level of fines. Wells Fargo merely examined debt and equity investors' expectations of what the fine would be. Wells Fargo concluded that a "fine or penalty in excess of expectations" could possibly cause a credit rating downgrade. (*Id.*, p. 22.)

However, the credit and equity analysts' prediction of the size of the penalty focused on "anticipated outcomes" based largely on "discussions with the CPUC,

comparisons to the Rancho Cordova case and the consensus of other analysts." (*Id.*, p. 20.) This provides little insight into PG&E's ability to pay penalties.

Further, $477 million is merely the average of a group of predictions by selected analysts. Some analysts, such as S&P, Morgan Stanley, JP Morgan, and ISI, predicted much higher outcomes, which were not included in the average. For example, JP Morgan estimated the penalty would be $750 million. (Joint 51, p. 9.) ISI (an equity analyst group quoted in the Wells Fargo report) released its own analysis that provided estimates of PCG's share price based on fine amounts ranging from $500 million to $2 billion. (Joint 53, p. 25.) Morgan Stanley estimated fines for purposes of measuring the impact of an equity issuance, stating "PG&E as a whole appears to be able to absorb estimated costs" (Joint 70, p. 9), and used illustrative cases of fines up to $1.0 billion and $1.225 billion in estimated costs. (*Ibid.*) S&P conducted a credit analysis in December 2012, looking at PG&E's "cash flow and capital structure expenditures". (Joint 72, p. 8.) S&P estimated "fines and out-of-pocket costs related to the San Bruno incident of at least $1.7 billion", noting that while this would cause "weaker cash flow" in 2013, but gradual improvement in 2014. (*Ibid.*) Some analysts are publically predicting outcomes much higher than $477 million.

The Wells Fargo analyst concluded that fines "in excess of investor expectations will not instill confidence in the risk averse majority of utility investors." (*Id.*, p. 28.) If there is a lack of confidence in the business climate, an equity offering by PG&E will not be "attractive to investors", according to Wells Fargo. (*Ibid.*)

However, if it is true that investor expectations is the most important factor, PG&E should not selectively choose a small number of analysts' predictions as to the expected fine. This provides little, if any, insight into investors' expectations. Instead, PG&E should consider the high and low end of a wide range of investor expectations, because (under this logic) so long as the fine remains within the predicted range matched by investor expectations, there will not be adverse consequences. Looking at a full range of predicted outcomes, the upper range of expectations appears to be closer to $1.0 billion.

CPSD does not agree with this approach. However, under Wells Fargo's own logic, it would seem that $477 million does not encompass the totality of investor expectations, and that a penalty within the higher end of expectations would serve Wells Fargo's stated goal to protect "confidence" in the business environment. The upper ranges of expectations are much higher than the average of $477 million calculated by Wells Fargo, which is merely the midpoint. So long as the penalty is within the expectations, a PG&E equity offering to pay penaltys should be well-received.

E. Totality of the Circumstances in Furtherance of the Public Interest

Another important factor is the public interest in the particular circumstances of the case. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *58.) The public interest in this case has been especially intense, as illustrated by the extensive media coverage. In setting the penalty, the Commission must keep in mind the strong public interest in being reassured that this will never happen again.

It is deeply troubling to the public that PG&E installed pipe sections in San Bruno that were clearly not safe or suitable for use as gas transmission pipeline. This has resulted in a system-wide testing and replacement project (the PSEP) that will cost billions of dollars and will continue for decades.

But even more troubling is PG&E's acknowledgement that it *did not even know the pups existed.* This calls into question everything the public believed about PG&E. If PG&E's records are this bad, what else do we not know? PG&E's acknowledgement has resulted in a massive search to verify the accuracy of PG&E's records. And this search has uncovered that PG&E is missing data such as pressure test history for miles and miles of its pipelines. PG&E's "safety journey" to restore a vibrant safety culture and win back the public's trust will last for "decades". (D.12-12-030.)

Penaltys commensurate with the harm caused will be a good step towards restoring the public's trust. A penalty level that is "the cost of doing business" and causes merely a dent in PG&E's profits will do little if anything to restore the public trust. In addition, the public must see that the Commission is making additional remedies

mandatory that address the many problems identified as a result of the San Bruno explosion. CPSD's additional remedies are described below.

F. The Role of Precedent

Finally, the Commission will consider precedential cases in setting the penalty level. (D.98-12-075; 1998 Cal. PUC LEXIS 1018, *58.) In truth, however, this case is difficult to compare to any previous incident. The Commission acknowledged that many Commission cases are of "first impression"; that is, many enforcement cases present circumstances never before encountered by the Commission. (*Ibid.*) The Commission recognized that many cases are "not usually directly comparable". (*Ibid.*) This is especially true of the incident in San Bruno.

That being said, there is one case that is similar, although not comparable in size, scope, or severity. On December 24, 2008, a house in Rancho Cordova, California, exploded due to a natural gas leak on PG&E's gas distribution pipeline. (D.11-12-021.) One person was killed, 5 people were injured, and 3 homes were destroyed. CPSD and PG&E entered into a "Stipulation to Order Resolving Investigation", which resolved the issue. PG&E agreed to pay a fine of $38 million, and agreed that it had violated certain laws. In Appendix A to D.11-12-021, the Commission stated as to the cause of the accident:

> "The NTSB report concluded the following:
>
> > The National Transportation Safety Board determines that the probable cause of the December 24, 2008, release, ignition, and explosion of natural gas in Rancho Cordova, California, was the use of a section of unmarked and out-of-specification polyethylene [PE] pipe with inadequate wall thickness that allowed gas to leak from the mechanical coupling installed on September 21, 2006. Contributing to the accident was the 2-hour 47-minute delay in the arrival at the job site of a Pacific Gas and Electric Company crew that was properly trained and equipped to identify and classify outdoor leaks and to begin response activities to ensure the safety of the residents and public."

Rancho Cordova was caused by an "unmarked" and "out-of-specification" pipe, with inadequate wall thickness. Contributing to the accident was a long delay in response

time by PG&E. Clearly, there are stark similarities between the incident in Rancho Cordova and San Bruno. But when asked what the lessons to be learned from Rancho Cordova were, a PG&E witness stated, "I don't have the detailed understanding of what those lessons were." (RT 315:23-316:1.) Apparently, little changed at PG&E as a result of the Rancho Cordova case. The Commission should keep in mind the similarities (and differences) between this case and Rancho Cordova when setting the fine amount.

The Commission has in the past adjudicated other enforcement cases that involved large fines. In the *Edison PBR fraud OII*, the Commission imposed a fine of $30 million and refunds of approximately $72 million, as a result of management manipulating and submitting false customer satisfaction data that was used to determine Performance Based Ratemaking (PBR) customer satisfaction rewards for Edison. (D.08-09-038.) In the *Cingular OII* (upheld on appeal), the Commission ordered fines of approximately $12 million and refunds that totaled approximately $30 million. (*PacBell Wireless v. PUC* (2006) 140 Cal.App. 4th 718.) In the *Qwest OII*, the Commission imposed a fine of $20 million for widespread slamming and cramming abuses. (D.02-10-059.) In the *Pacific Bell DSL OII*, the Commission adopted a settlement between CPSD and SBC that included $27 million in fines. (D.02-10-073.) However, none of these cases involved deaths or severe damage to property. They are not truly comparable.

The circumstances of the British Petroleum (BP) oil spill in the Gulf of Mexico differ in many ways, but it is worthy of mention that in November 2012, BP and the US Department of Justice reached a settlement where BP will pay $4.5 billion in fines and other payments.[30] That involved the explosion and sinking of the Deepwater Horizon oil rig, which claimed 11 BP workers' lives and caused a sea-floor oil gusher to flow unabated for 87 days. (*Ibid.*) However, the regulatory environment for BP was very different than PG&E's, and BP is a much larger company than PG&E. Comparisons should be made with caution.

[30] http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill#Civil_litigation_and_settlements.

CPSD also believes that PG&E's failure to keep traceable, verifiable, complete, and accurate gas transmission records in such a systemic and widespread fashion is unprecedented.

In setting the level of the penalty in this proceeding, the Commission should consider precedential cases; however, there are no directly comparable cases and any comparisons to this case, where the death and destruction are more severe than any previous public utility incident, should be made carefully.

G. The Commission Should Use its Equitable Powers to Order PG&E's Payment of Penalties to the PSEP Costs

As the Court stated in *Wise v. Pacific Gas and Electric Co.*, *supra,* 77 Cal.App.4th 299: "The PUC may exercise equitable jurisdiction as an incident to its express duties and authorities. Pursuant thereto, it may, for example, issue injunctions in aid of its jurisdiction [or] direct that a trust fund be created to consider potential refunds."[31]

For the reasons stated above, the Commission use its equitable powers to order PG&E to pay for the safety-related costs in the PSEP I and PSEP II proposals. This is justified by the billions of dollars it would take for PG&E to meet acceptable safety standards without putting the entire burden on ratepayers.

IV. REMEDIES

A. For all three OIIs

1) PG&E should pay to reimburse CPSD for contracts retaining independent industry experts, chosen by CPSD, for the cost of verification audits and inspections to ensure compliance with the other remedies. PG&E should also pay to reimburse CPSD for contracts retaining independent industry experts, chosen by CPSD in the near term to provide needed technical expertise as PG&E proceeds with its hydrostatic testing program, in order to provide a high level of technical oversight

[31] Although the Court in *Wise v. Pacific Gas and Electric Co.* addressed the issue of the rule against retroactive ratemaking, the Commission would not even be violating the rule herein. This is because in the PSEP Decision, D.12-12-030, Ordering Paragraph 3, stated: "All increases in revenue requirement authorized in Ordering Paragraph 2 are subject to refund pending further Commission decisions in Investigation (I.) 11-02-016, I.11-11-009, and I.12-01-007."

and to assure the opportunity for legacy piping characterization though sampling is not lost in the rush to execute the program.

2) PG&E should reimburse CPUC/CPSD for the cost of conducting all three of the present investigations.

3) PG&E should apply the remainder of the $2.25 billion penalty to the PSEP cost and expenses for Phases I and II until it reaches the maximum amount of the penalty.

B. Recommended remedies in I.12-01-007

CPSD's recommendations in this proceeding are contained in CPSD's Report.

1) PG&E should revise its pipeline construction and installation procedures and training to ensure that they meet and exceed all legal requirements and industry standards for identifying and correcting pipe deficiencies and strength testing.

2) PG&E should revise section 2 of RMP-06 to fully and robustly meet the data gathering requirements of 49 CFR Part 192.917(b) and ASME-B31.8S, and to do so without limiting its data-gathering to only that data which is "readily available, verifiable, or easily obtained" by PG&E.

3) PG&E should perform a complete company wide record search ensure its GIS database includes all pipeline leak history, including closed leak, information not already transferred to the GIS.

4) PG&E should revise its Integrity Management training to ensure that missing data is represented by conservative assumptions, and that those assumptions are supportable, per the requirements of ASME B31.8S.

5) PG&E should revise section 2 of RMP-06, and related training, to ensure full and robust data verification processes are enacted and implemented.

6) PG&E should revise its threat identification and assessment procedures and training, including its Baseline Assessment Plans, to fully incorporate all relevant data for both covered and non-covered segments, including but not limited to potential manufacturing and construction threats, and leak data.

7) PG&E should re-label its system MAOP nomenclature to avoid confusion with the MOP term of art as used by 49 CFR Part 192.917(e)(3).

8) PG&E should permanently cease the self-suspended practice of regularly increasing pipeline pressure above a "system MAOP" to eliminate the need to consider manufacturing and construction threats. In addition, due to PG&E's pressure spiking practice such threats should now be considered by PG&E to be unstable under 49 CFR Part 192.917(e)(3).

9) PG&E should revise its threat identification and assessment procedures and training to ensure that HCA pipeline segments that have had their MAOP increased are prioritized for a suitable assessment method (e.g., hydro-testing), per the requirements of 49 CRF Part 192.917(e)(3)-(4).

10) PG&E should revise its threat identification and assessment procedures and training to ensure that cyclic fatigue and other loading conditions are incorporated into their segment specific threat assessments and risk ranking algorithm, and that threats that can be exacerbated by cyclic fatigue are assumed to exist per the requirements of 49 CRF Part 192.917(b).

11) PG&E should revise its risk ranking algorithm to ensure that PG&E's weighting factors in its risk ranking algorithm more accurately reflect PG&E's actual operating experience along with generally reflected industry experience.

12) PG&E should revise its threat identification and assessment procedures and training to ensure that PG&E's weighing of factors in its risk ranking algorithm and the input of data into that algorithm corrects the various systemic issues identified in the NTSB report and the CPSD/PHMSA 2011 Risk Assessment Audit.

13) PG&E should revise its threat identification and assessment procedures and training to ensure that the proper assessment method is being used to address a pipeline's actual and potential threats.

14) PG&E should make revisions to its equipment retention policy to ensure that integrity of equipment, wiring and documentation and identification of electrical components does not deteriorate to unsafe conditions such as occurred at the Milpitas Terminal, described herein. If PG&E does not have an applicable equipment retention policy then it should formulate one.

15) PG&E should revise its SCADA system to reduce the occurrence of "glitches" and anomalies in the control system that desensitizes operators to the presence of alarms and other inconsistent information.

16) PG&E should reevaluate SCADA alarm criteria with the goal of reducing unnecessary alarm messages.

17) PG&E should revise its control systems, including SCADA, to ensure that all relevant information, including redundant pressure sensors, is considered.

18) PG&E should install more pressure sensors and have them closely spaced and use the additional information to incorporate leak or rupture recognition algorithms in its SCADA system.

19) PG&E should program its PLCs to recognize that negative pressure values are erroneous and require intervention to prevent valves from fully opening.

20) PG&E should replace the three pressure controllers which malfunctioned on September 9, 2010.

21) PG&E should review its work clearance process to ensure that abnormal operating conditions that may arise during the course of work are anticipated and responses to those conditions are detailed. Additionally, PG&E should create a "method of procedures" covering the transfer and commission of electrical loads from one Uninterruptable Power Supply to another. This plan should cover possible scenarios and contingency plans to mitigate any abnormal operating conditions that may arise.

22) PG&E should revisit its Work Clearance procedures and training to ensure that future work will not be authorized unless: all forms and fields therein are comprehensively and accurately populated; and, the gas technician has prepared the work clearance him/herself or has intimate knowledge of the work clearance. Additionally, work should not commence until such time as the operator and technician have reviewed the work clearance and have confirmed that both have intimate knowledge of the items detailed in the work clearance form. Lastly, PG&E must ensure that proper records showing the specific steps taken, when taken, and by whom, are retained.

23) Training – PG&E should provide training to Gas Service Representatives to recognize the differences between fires of low-pressure natural gas, high-pressure natural gas, gasoline fuel, or jet fuel.

24) Internal coordination – PG&E should revise its procedures to outline each individual Dispatch and Control Room employee's roles, responsibility, and lines of communication required to be made in the event of an emergency either during or outside normal working hours. This should include assigning specific geographical monitoring responsibilities for Control Room employees.

25) External coordination – CPSD agrees with NTSB recommendation P-11-2, which requests that PHMSA issue guidance to operators of natural gas transmission and distribution pipelines and hazardous liquid pipelines regarding the importance of control room operators immediately and directly notifying the 911 emergency call center(s) for the communities and jurisdiction in which those pipelines are located when a possible rupture of any pipeline is indicated. CPSD further recommends that prior to such PHMSA guidance PG&E should revise their own procedures to allow for the immediate and direct notification of 911 emergency call centers when a possible pipeline rupture is indicated.

26) Decision making authority – PG&E should revise its emergency procedures to clarify emergency response responsibilities, especially in regards to authorizing valve shut offs. PG&E policies should not just delegate authority to act but also detail obligations to act.

27) RCV/ASV – PG&E should perform a study to provide Gas Control with a means of determining and isolating the location of a rupture remotely by installing RCVs, ASVs, and appropriately spaced pressure and flow transmitters on critical transmission line infrastructure and implement the results.

28) Response time – PG&E should review required response times in other utility service territories nationwide and devise appropriate response time requirements to ensure that its Emergency Plan results in a "prompt and effective" response to emergencies. PG&E shall report its analysis and conclusions to the Commission for review.

29) Emergency Plan Revision – Currently a maintenance supervisor annually reviews SCADA alarm responses and makes revisions as necessary. This process needs to be formalized to ensure a robust feedback loop such that new information is fully analyzed and necessary changes to PG&E's Emergency Plan and/or other procedures are implemented with a subsequent review of made changes to ensure they are adequate.

30) Public Awareness – CPSD agrees with NTSB recommendation P-11-1, which requests PHMSA issue guidance to operators of natural gas transmission and distribution pipelines and hazardous liquid pipelines regarding the importance of sharing system-specific information, including pipe diameter, operating pressure, product transported, and potential impact radius, about their pipeline systems with the emergency response agencies of the communities and jurisdiction in which those pipelines are located. CPSD further recommends that prior to such PHMSA action PG&E undertake a review of its public awareness and outreach programs to ensure that system-specific information is appropriately disseminated.

31) PG&E's "Transformation" strategy and subsequent programs should expressly ensure that safety is a higher priority than shareholder returns and be designed to implement that priority, which may include reinvesting operational savings into infrastructure improvements.

32) PG&E should target retained earnings towards safety improvements before providing dividends, especially if the ROE exceeds the level set in a GRC decision.

33) PG&E's incentive plan, and other employee awards programs, should include selection criteria for improved safety performance and training and/or experience in the reliability and safety aspects of gas transmission and distribution. PG&E should ensure that upper management attends gas safety training.

34) PG&E should not hold joint Company and Corporation Board of Director meetings as the two entities should have different priorities.

35) PG&E should examine whether the time and money it spends on public relations and political campaigns distracts it from its core mission of providing safe and reliable gas service.

36) PG&E should revisit its Pipeline 2020 program, and subsequent variations thereof, to ensure that its implementation is fully flushed out with specific goals, performance criteria, and identified funding sources.

37) PG&E should examine internal communication processes to ensure that all employees are knowledgeable on what is expected of them and their teams.

38) CPSD agrees with the following NTSB recommendations to PG&E (CPSD-9, pages 130-131):

a) Revise your work clearance procedures to include requirements for identifying the likelihood and consequence of failure associated with the planned work and for developing contingency plans. (P-11-24)

b) Establish a comprehensive emergency response procedure for responding to large-scale emergencies on transmission lines; the procedure should (1) identify a single person to assume command and designate specific duties for supervisory NTSB Pipeline Accident Report 131control and data acquisition staff and all other potentially involved company employees; (2) include the development and use of trouble-shooting protocols and checklists; and (3) include a requirement for periodic tests and/or drills to demonstrate the procedure can be effectively implemented. (P-11-25)

c) Equip your supervisory control and data acquisition system with tools to assist in recognizing and pinpointing the location of leaks, including line breaks; such tools could include a real-time leak detection system and appropriately spaced flow and pressure transmitters along covered transmission lines. (P-11-26)

d) Expedite the installation of automatic shutoff valves and remote control valves on transmission lines in high consequence areas and in class 3 and 4 locations, and space them at intervals that consider the factors listed in Title 49 Code of Federal Regulations Part 192.935(c). (P-11-27)

e) Revise your postaccident toxicological testing program to ensure that testing is timely and complete. (P-11-28)

f) Assess every aspect of your integrity management program, paying particular attention to the areas identified in this investigation, and implement a revised program that includes, at a minimum, (1) a revised risk model to reflect the PG&E Company's actual recent experience data on leaks, failures, and incidents; (2) consideration of all defect and leak data for the life of each pipeline, including its construction, in risk analysis for similar or related segments to ensure that all applicable threats are adequately addressed; (3) a revised risk analysis methodology to ensure that assessment methods are selected for each

pipeline segment that address all applicable integrity threats, with particular emphasis on design/material and construction threats; and (4) an improved self-assessment that adequately measures whether the program is effectively assessing and evaluating the integrity of each covered pipeline segment. (P-11-29)

g) Conduct threat assessments using the revised risk analysis methodology incorporated in your integrity management program, as recommended in Safety Recommendation P-11-29, and report the results of those assessments to the Commission and the Pipeline and Hazardous Materials Safety Administration. (P-11-30)

h) Develop, and incorporate into your public awareness program, written performance measurements and guidelines for evaluating the plan and for continuous program improvement. (P-11-31)

C. Recommended remedies in I.11-02-016

CPSD wishes to provide the following qualification about its proposed remedies in the recordkeeping proceeding. There have been no hearings and no separate proceeding specifically directed to proposed remedies. Therefore, the record evidence that does exist for some of CPSD's proposed remedies was created incidentally from evidence pertaining to violations, and is certainly sufficient to support the remedies. The current evidence in the recordkeeping proceeding is sufficient to establish a need for the Commission to direct CPSD to conduct a recordkeeping audit, and select its own auditors for that purpose. However, there is little or no evidence in the record on the cost of such an audit. To the extent that these and other issues on remedies may be contested by PG&E, it may be necessary to hold hearings.

The overarching requirement for the remedies that PG&E must use is compliance with all applicable rules, regulations and laws related to recordkeeping. The NTSB utilizes the terms "traceable, verifiable and complete" to characterize the level of recordkeeping that is required for applicable records. Ultimately, PG&E is responsible for maintaining records that permit and enable it to provide gas to its customers in a way that protects the safety of its employees, customers and the general public. The recommendations in this section are not intended to state all regulatory and engineering requirements for PG&E's recordkeeping systems. However, based on the record in the

recordkeeping investigation, CPSD recommends the following specific remedies that should be included in PG&E's ongoing efforts to improve its systems.

1) PG&E should be required to achieve at least a Level 3 information maturity score under the Generally Accepted Records Keeping Principles. (CPSD Exhibit 6, Appendix 4)

2) PG&E should be required to achieve International Organization Standard (ISO) certification against ISO 30300 for its Management System for Records (MSR) within five years of the ISO 30300 audit standard being finalized and published.[32]

3) PG&E should develop a program to draft, review, approve and issue corporate policies and policy guidance that will:

    a. establish guidance for all departments and divisions to assist them with drafting standard practices to implement the corporate policies,

    b. will incorporate an internal audit function to review standard practices for compliance, consistency and accuracy, and

    c. will incorporate a retention policy with a schedule that identifies all records within the business for which there is a retention period mandated by federal / state laws; general orders and regulations including CPUC section 451 and its successors.

4) PG&E should develop and implement an education and training program in information governance; records management principles and practices; and information security.

5) PG&E should develop and deploy the systems necessary to manage, maintain, access and preserve both records and documents (physical and electronic, in all formats and media types); their related data, metadata, and geographic location and geospatial content in accordance with legal and business mandated rules, utilizing technology that includes appropriate aids to help improve data and metadata quality, including but not limited to validation, verification and referential integrity.

6) PG&E should establish a method of accountability for senior manager who are responsible for developing and implementing information governance strategies

[32] A new international series of standards (ISO 30300 through ISO 30304) positions records management at a management systems level and strategically aligns recordkeeping with quality management, security management, and environmental management. The five standards will collectively form a coherent Management System for Records including certification and auditing components. This standard is designed to enable senior management to build a management system for good governance. Refer to www.iso.org for more information. The standards are still under development. PG&E could begin working toward the ISO 15489 standard currently in place.

across engineering processes and standard practices and should document the results at least annually.

7) PG&E should identify and document annually the employees responsible for implementation of standard practices developed for records and engineering documents control.

8) PG&E should develop consistent standard practices that include records management / engineering document control linked to corporate polices on information governance and engineering processes.

9) PG&E should implement mandated retention periods for all relevant records.

10) PG&E should ensure that each engineering process and corresponding standard practice explains how the data, information, documents and records are handled, when and by whom; which laws, regulations and standards govern the records and where the records reside and are maintained, retained and disposed of.

11) PG&E should develop a policy that describes how records (paper and electronic) that are inactive and accessed on an irregular basis for long periods of time will be stored and protected.

12) PG&E's records management processes should be able to manage and maintain traceability and accuracy of physical and digital pipeline records for the 'life of the asset.'

13) The accuracy and completeness of data within gas transmission records should be traceable, verifiable and complete and when errors are discovered, the record should be corrected as soon as correct information is available and the reason(s) for each change should be documented and kept with the record.

14) PG&E should create a standard format for the organization of a job file so that PG&E personnel will know exactly where to look in a file folder, or set of file folders, to find each type of document associated with a job file. At a minimum, a job file will contain traceable, verifiable and complete records to support the MAOP of the pipeline segment installed; design documentation; purchase documentation showing the sources and specifications of equipment purchased; permits; environmental documents; field notes; design, construction and as-built drawings; x-ray reports and weld maps; pressure test records; correspondence with the CPUC; and inspection reports and correspondence.

15) Job file data, including drawings, for all parts of the active PG&E gas transmission system should be immediately accessible from multiple locations. The development of a complete and accurate catalog of "job files that can be searched immediately should be included within this objective.

16) The information that was contained in PG&E's historic records and documents, and that has been identified as 'missing or disposed of,' and is necessary to be retained for the safe operation of the pipelines, pursuant to laws, regulations and

standards and the PG&E retention schedule, should be recovered. This recovery should include but not be limited to:

a. updating and verification of data in engineering databases, such as the leak database, GIS and the integrity management model,
b. updating plat sheets and other engineering drawings, and
c. updating and organizing job files.

17) PG&E should document adoption of, and changes and amendments to policies and standard practices and the reasons for their adoption, amendment or cancellation. An audit trail of changes should be maintained, retained and preserved permanently, taking heed of potential changes in technology that may render documents unreadable in the future.

18) PG&E will identify each section of pipe that has been salvaged and reused within the PG&E gas transmission system. For each section of pipe identified, PG&E will change the installed date in its GIS and its IM model to the date the pipe was originally installed in the PG&E pipeline system.

19) PG&E will create a system to track reused pipe installed within its operating gas transmission pipeline system and will maintain these records so long as there are sections of reused pipe in the PG&E operating gas transmission pipeline system.

20) PG&E should implement the recommendations included in the final Pricewaterhouse Coopers (PwC) audit report. (TURN Exhibit 16, Appendix B)

21) Using independent auditors, CPSD will undertake audits of PG&E's recordkeeping practices within the Gas Transmission Division on an annual basis for a minimum of ten years after the final decision is issued in I.11-02-016.

22) PG&E will correct deficiencies in recordkeeping discovered as a result of each CPSD audit and will report to CPSD when such deficiencies have been corrected.

D. Recommended remedies in I.11-11-009

PG&E "agree[s] with most of [these] recommendations. (PG&E's July 23, 2012 Response to CPSD's Investigative Report, Prepared Testimony, at p. 1-2.)

1.) Systems: Utilize industry-approved and accepted software for electronic storage of class location information.

[The accuracy of information in PG&E's GIS is wholly inadequate and unreliable. The latest version of TD-4127P-01 still has GIS as the key element for finding and updating field-density surveys and pipeline data.]

- Devise a system to capture and document new PG&E service hook-ups especially in proximity to transmission lines.

2.) Procedures: Update procedure TD 4412-07 6.2 (4) to require written confirmation to patrollers that follow up has been performed on all new construction that the patroller has previously observed and documented. The same change should be made to Attachment 7 Item 5 of TD 4412-07, *Aerial Patrolling Process Instructions*. This requirement should also be included in the OQ training for the task.

[Patrolling procedure TD 4412-07 6.2 (4) states that if no new hazards are observed, "Then document this on the Aerial Patrol Report form." Because of this direction, "No new hazards observed" or similar statement is a common entry on patrolling reports. Staff discovered that observers or patrollers, having once listed new construction, did not report it a second time resulting in the potential change being overlooked. No follow-up was performed. Therefore, PG&E should require new construction to be listed on all patrols until the ground crew that provides the follow up provides written confirmation.]

3.) Procedure 6.3 (3) should be rewritten as "List all new observations regardless if it is believed that the ground crew has already investigated the observation."

[The investigation revealed that an aerial patrol pilot who patrols a large percentage of PG&E's gas lines does not always include observations (including new construction) if his contact on the ground states that they are already aware of the project. TD 4412P-07 item 6.3 (3) requires documentation of all observations "that require additional ground review". As written, this procedure could be interpreted that if the pilot is told that the ground crew is already aware of a project, it does not "require additional review."]

4.) TD-4412-07 section 6.1 (2) should include specific language for the pilot to recommended increased patrolling to the Aerial Patrol Program Manager.

[Utility Procedure TD-4127P-01 Observing, Reporting, and Evaluating New Construction and Conducting Class Location Studies *section 3.1 states: "Areas experiencing a lot of planned development may require more frequent patrols." Unfortunately, the procedure does not provide any guidance as to what constitutes "a lot" of development in order to trigger additional patrols, or specify who actually makes the decision to authorize additional patrols. Since Section 3.1 is a procedure for patrolling personnel, it suggests that they make the decision. TD-4127P-01 Section 3.8 (1) discusses increasing the frequency of patrols, but is in regards to segments that have had their class location revised, and the additional patrols are to satisfy 49CFR192.]*

5.) Ensure that the *Report of New Construction* forms are completed.

[In reviewing PG&E's Report of New Construction *forms, staff found that only 4 of the 35 documents had all three bottom sections completed. A common review element for auditing patrolling reports is to check that all portions of the reports have been completed. Completeness of reports is included in the patrolling audit checklist. Completion of 4127 forms must become a routine element in future internal audits and should be included in a checklist.]*

6.) Increase the duties of the Aerial Patrol Program Manager (APPM) to include oversight and review of the quality and accuracy of patrol reports.

7.) Create a detailed procedures manual containing the APPM's duties to ensure quality control of aerial patrol responsibilities.

8.) Training: Generate multiple training exams for patrolling.

[Staff recommends that PG&E develop additional examinations to ensure that the trainee does not see the same exam upon subsequent requalification.]

9.) The new training exams for patrolling should include questions with greater detail and complexity than the current exam.

[Patrolling exams submitted to CPUC staff contained fairly simple questions which require only a rudimentary understanding of class locations.]

10.) Improve Aerial Patrol Pilot training.

[PG&E should consider pilot training using aerial photographs taken at an altitude of 750 feet, which replicates what the pilots see on patrol, and include a number of structures both within and outside of the 660 foot standard. Use the photos as exam exhibits where the pilots indicate which structures are approximately 660 feet from the right of way and would require reporting. Training should also include a WDA in the exhibit as well.]

11.) Audits: Audits for patrolling should include a comparison of new construction observations with new gas/electrical hook ups near the line to ensure that new construction has not been missed.

12.) A new item "All Sections of Document Completed" should be added to the audit checklist when reviewing Reports of New Construction.

13.) Audits should make sure that copies of completed Reports of New Construction are being provided to local supervisors as required by standard procedure TD-4127P-01 section 3.8 (5).

V. CONCLUSION

For the foregoing reasons, CPSD respectfully submits that the Commission should penalize PG&E a total of $2.25 billion. The Commission should utilize its equitable powers to order PG&E to apply this amount to its Pipeline Safety Enhancement Program, thereby decreasing the burden on PG&E's ratepayers, and to pay for auditors and other remedies designed to improve the safety of PG&E's system.

Respectfully submitted,

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