Investigation: 11-02-016
Exhibit No.:
Date:
Witnesses:

PACIFIC GAS AND ELECTRIC COMPANY'S RESPONSE TO THE CONSUMER PROTECTION AND SAFETY DIVISION'S REPORTS:

RECORDS MANAGEMENT WITHIN THE GAS TRANSMISSION DIVISION OF PG&E PRIOR TO THE NATURAL GAS TRANSMISSION PIPELINE RUPTURE AND FIRE, SAN BRUNO, CALIFORNIA, SEPTEMBER 9, 2010

AND

REPORT AND TESTIMONY OF MARGARET FELTS

TESTIMONY OF WITNESSES

PACIFIC GAS AND ELECTRIC COMPANY

EXPERT REPORT OF

MAURA L. DUNN, MLS, CRM, PMP

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A. The Assignment

In March 2012, I was retained by Pacific Gas & Electric Company (PG&E) to serve as an independent expert in records and information management, to serve as a rebuttal witness to the reports submitted by consultants retained by the Consumer Protection and Safety Division (CSPD) of the California Public Utility Commission (CPUC or the Commission), and to assist in PG&E'S response to the Commission's *Order Instituting Investigation (OII) 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).* I was asked to perform the following tasks (the Assignment).

1. Review expert reports and testimony on PG&E's recordkeeping practices provided by experts retained by the CPSD and provide opinions as to the methodology and conclusions presented therein. Conduct a limited comparative review of PG&E's current and historic recordkeeping practices, through review of documents, and provide context and opinions related to the state of the industry with regard to recordkeeping over time.
2. Evaluate PG&E's plan for creating a more robust recordkeeping environment in the future.
3. Address alleged violations related to records management, recordkeeping and records retention identified by the Commission.

Specifically, I was hired to serve as a rebuttal witness to the Duller/North Report issued by the CPSD on March 12, 2012. The Assignment does not include a full independent assessment of PG&E's records management program and practices over the time period in question.

B. Expert Background and Qualifications

I am a Director in the Duff & Phelps, LLC, Washington, DC, office, where I lead the enterprise information management and records strategies practice worldwide. My practice provides consulting services in records and information management and eDiscovery program development to corporations in many industries. Over my more than 25 years in this industry, I have also consulted with many federal government agencies, including the National Archives and Records Administration, the Department of Energy and the Environmental

Protection Agency, in developing and implementing their records management programs.

I earned a Bachelor's of Arts degree in English from Georgetown University in Washington, DC, and a Masters in Library Science (MLS) degree from the University of Maryland. I am a Certified Records Manager (CRM) of the Institute of Certified Records Managers and a Certified Project Management Professional (PMP) of the Project Management Institute. I have been granted access to classified information at the Top Secret/Secure Compartmented Information (TS/SCI) level.

My experience ranges from managing hardcopy records centers and scanning hardcopy documents to developing robust records management programs, including implementing electronic records management systems. I specialize in program assessment, visioning and strategy development. I am a regular speaker and author in multiple professional forums and publications on the topics of records management program development; electronic records management; and change management, training and communication in support of program implementation.

For the past four years, my primary client has been a regional U.S.-based utility that has a similar profile and footprint to PG&E's. Specifically, the client provides both gas and electric services to commercial and residential customers in multiple states and operates transmission and distribution pipelines; over time, individual business units developed their own processes for meeting recordkeeping requirements, which led to inconsistencies. The company had several core elements of a records management program in place, focused primarily on paper records, but they were concerned about the increasing trend towards litigation in the U.S., the need to demonstrate consistent compliance with applicable regulations, and their increasing dependence on electronic records.[1] For this client, I conducted an assessment of the current state of records management across the organization, led senior executives in a visioning session to develop a strategy and assisted them in hiring a Director of Records Management. For three years, my team and I supported this Director

1 Dunn, Maura L, and Walker, Paula. *Case study 1: Achieving compliance through process-centric retention scheduling*. Managing Records Retention and Disposal, Alison North, Ark Group in association with InsideKnowledge, 2011.

in implementing the records management strategy. Last year when the client decided to outsource the program, my team took over the management of the program directly. We are now focused on implementing an electronic records and content management system across the entire organization, reflecting the enterprise taxonomy, file plan and records retention schedule we developed for the company in the past two years. In addition, we have developed an enterprise information map and conducted an extensive backfile characterization for this client, increasing their visibility into and control over their information, in both hardcopy and electronic format.

I co-authored a detailed case study of our support to the utility mentioned above. An extended, multi-part version of this case study appeared in 2008 and 2009 in *Expert and Legal Management Insights.*[2] A streamlined version of this case study appeared in Managing Records Retention and Disposal, an industry textbook on records retention.[3]

A current and accurate copy of my curriculum vitae, including publications and presentations, appears as Appendix A to this document.

In addition to the expert testimony and reports provided by the CPSD, I based my opinions on review of documents provided by PG&E to the CPSD in response to various data requests; on publicly available documents, citations and regulations; on interviews with PG&E staff and representatives of ARMA International; and on my own professional experience and expertise. A list of specific documents referenced and/or relied on appears as Appendix B to this document.

I am being compensated for my work in this matter at the rate of $550.00 per hour; my fees are not contingent upon any finding or result in this matter.

C. Summary of Assignment, Scope and Methodology

I conducted a thorough review of company documentation, publicly available sources and the reports and testimony provided by the CPSD. I also conducted

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2 Dunn, Maura L, et al. Case Study: *Meeting Compliance Requirements through a Comprehensive Records Management Program* (three parts) Parts 1 and 2 with Diane Carlisle, Part 3 with Gordon Workman, Expert and Legal Management Insights, 2008-2009 (serial).

3 Dunn, Maura L., and Walker, Paula. *Case study 1: Achieving compliance through process-centric retention scheduling*. Managing Records Retention and Disposal, Alison North, Ark Group in association with InsideKnowledge, 2011.

targeted interviews with staff involved in the Maximum Allowable Operating Pressure (MAOP) Validation effort and staff in the Legal and Information Technology (IT) departments responsible for creating a robust records and information management environment for PG&E in the future.

1. Information Sources

PG&E provided access to documents in hardcopy and electronic format. Finding aids in the form of tables of contents for the hardcopy documents were also provided. A list of the documents referenced is included in Appendix B. The majority of these documents were also provided to CPSD in the form of responses to data requests. I depended most heavily on the records retention schedules and standard practice documents provided by PG&E as evidence of their recordkeeping practices over the past half-century.

In addition, I conducted research to support the opinions and expertise provided in this report. Examples include the text of specific laws and regulations referenced by the CPSD's experts and/or referenced in support of PG&E's historic retention schedules, historic and current trends in records management, the use of maturity models in different industries, and the reaction of the pipeline industry to the "traceable, verifiable and complete" requirement. I also contacted ARMA International,[4] the professional association for the records management industry, to confirm details related to the publication, dissemination and use of the Generally Accepted Recordkeeping Principles (GARP®) and the associated Information Governance Maturity Model and GARP® assessment tool.[5] In addition, I conducted research into the history of the records management industry, and the development of the discipline of records retention scheduling dating from the mid-twentieth century. This research was conducted as part of understanding and evaluating the methodology used by CPSD's experts, Dr. Paul Duller and Ms. Allison North, in their assessment of PG&E's records management program as well as understanding the context and

4 Telephone interview with Angie Dickerson, GARP® Project Administrator, ARMA International, April 17, 2012.

5 ARMA International, ARMA's GARP® Principles and Information Governance Maturity Model, 2009.

environment prevalent in the U.S. with regards to records retention and records management as part of which PG&E was developing and operating its program.

Finally, I conducted in-person interviews with key staff. See Appendix C for a list of the staff interviewed. The interviews took place on May 15, 16 and 17, 2012, in PG&E's offices at Emeryville, Bayshore, Beale Street and Walnut Creek.

2. Conduct of Information Review and Analysis

I performed this work in accordance with professional standards for both records managers and project managers, specifically the ICRM Code of Ethics, the ARMA International Code of Professional Responsibility and the PMI Code of Ethics and Professional Conduct.

The primary work performed for the Assignment was review and study of existing documentation in light of the allegations made by the CPSD as to PG&E's shortcomings in its recordkeeping practices.

D. Summary of Opinions

Based on my review of company documentation (provided by PG&E as filings or in response to data requests to CPUC or provided to me as part of my discussions with staff); publicly available information relating to both the history of the records management industry in the U.S., and to the history of pipeline safety recordkeeping requirements in the U.S.; discussions with the indicated people; analysis of the existing records retention instructions; and application of my professional experience and expertise in records and information management, I have formed the following opinions.

1. The Duller/North Report Largely Misses the Mark

CPSD's experts depended on GARP®, a relatively new model first published by ARMA International in March 2009, to evaluate 50 years of records management history. The model defines a set of principles and associated maturity levels that attempt to capture essential characteristics of complex records management programs. The definitions are subject to interpretation and the application of these principles and the maturity levels is largely subjective, especially in the time before ARMA published its

assessment tool.[6] To the extent to which this model is at all applicable to the task at hand, it is more appropriate to providing a current state assessment and is not well suited to the retrospective review required here. Using the model to conduct such a retrospective review increases the level of subjectivity by virtue of the distance in time of the review from the actions themselves.

2. PG&E's Records Retention Policies Met Applicable Regulatory Recordkeeping Requirements

CPSD's allegations related to specific record retention violations fail to take into account PG&E's extensive standard practices library, wherein specific recordkeeping requirements are addressed in the context of the work to be performed and the records required to support and document that work and the Company's compliance with applicable regulations. These standard practices contain specific records retention instructions for managers and staff and cite applicable regulations in support of the mandated retention periods.

3. PG&E's Pipeline Records Integration Program, Combined with a Comprehensive, Enterprise-wide Records Management Program, Provides a Strong Foundation for a Robust Future State

PG&E's integrated approach to Gas Asset Knowledge Management represents an innovative approach to not only traditional records management but also to the use of the information contained in the records to improve and advance the business – both in operational efficiency and, more importantly, in safety. The Pipeline Records Integration Program, combined with a comprehensive enterprise-wide records management program, will build a strong foundation for better management and use of information in the future.

E. Expert Opinions

CPSD's experts maintain that "PG&E did not have all of the necessary processes in place to ensure that traceable, verifiable, and complete and accurate gas transmission pipeline records and related information was (sic)

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6 ARMA first published its GARP® assessment tool on April 17, 2012.

available in a timely manner. […] This led to inefficient and unsafe working practices."[7] However, they fail to prove this point in their report.[8] In fact, PG&E's records management program over time has provided direction to its staff, through records retention schedules and standard practices, relating to the *creation*, *maintenance,* and *preservation and disposition*[9] of records, in support of ongoing operations and in accordance with regulatory requirements.[10]

1. The Duller/North Report Largely Misses the Mark

CPSD's experts state "[t]he approach adopted was designed to identify 'gaps' in the document and records management service provision; *to understand how records management had evolved over time;*[11] and to comment upon any impact that poor document and records management has had upon the organization and pipeline safety."[12] This statement is belied by their GARP®-based assessment, however, as that assessment presents only one "grade" for each element of the Information Governance Maturity Model (IGMM). It is hard to tell whether that grade represents the state of the program in 1959, in 2010, or on average over the entire 50-year period. This uncertainty supports my opinion that the application of GARP® to this review is by definition subjective and, therefore, inappropriate.

GARP® is designed to assess current state; it is not appropriate to review 50 years of records management history.

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7 Duller/North Supplement at 2.

8 Duller/North Report.

9 Typically referred to as the records lifecycle, records management as a discipline addresses three main parts of a record's life. *Creation* encompasses ensuring that appropriate and necessary records are created (or received/captured) and preserved by the organization so that they can be sure they have the information they need to support the business and operations. *Maintenance* refers to the filing, organization, storage and use of records during their active life and for a period of inactivity (called the Retention Period). *Preservation/Disposition* is the final action taken on a record, following its retention period. For most records, this action is destruction. For a small percentage of records in an organization (typically 2%-5%), the final action is permanent preservation or archival storage.

10 See discussion on embedding of records retention information in standard practices in section E.2, below.

11 Emphasis added.

12 Duller/North Report at 2-13.

GARP® is a relatively new construct for the records management industry. ARMA first published the principles in March 2009. As such, the time for testing of this model has been relatively short, as compared, for example, to the Capability Maturity Model *Integrated* (CMMi) for Software Development, version 1.3 of which was published by the Software Engineering Institute in 2010, following more than ten years of widespread industry use of the earlier CMM.[13] Similarly, the Institute for Asset Management's Publicly Available Standard 55 maturity model assessment tool underwent six years of testing by numerous industry stakeholders before being made more widely available.[14] Institutionalizing something as complex as records management, which touches literally every aspect of every type of business or organization, into a maturity model is a daunting task. It is to be expected that the first iteration of the model is not perfect. I am equally certain that as companies start to use GARP® and the IGMM to evaluate and strengthen their records management programs, the model will be refined and improved, but right now, it is more theory than practice and should be taken as such.

CPSD states in its response to PG&E's Data Request Number 3 that, prior to September 9, 2010, CPUC had not codified or otherwise adopted or endorsed either GARP® or the IGMM or performed any audits evaluating a gas utility's compliance with GARP®.[15] Similarly, in CPSD's responses to PG&E's Data Requests 6 and 8, the Commission states that neither Dr. Duller nor Ms. North have assessed an organization using the GARP® principles before, nor are they aware of any other such assessments.[16] Finally, also in its response to Data Request Number 6, CPSD reports:

"In a recent straw poll of approximately 1700 members of a GARP User Group (as of 05-19-2012) those who responded reported that:

- 20% had not yet used GARP

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13 "CMMi for Development," Version 1.3 (CMMI-DEV, V1.3), Software Engineering Institute CMMI Product Team, November 2010.

14 PAS55 Assessment Methodology (PAM) brochure, The Institute of Asset Management.

15 CPSD's Response to PG&E Data Request 3, Questions 6 and 7a.

16 CPSD Response to PG&E Data Requests 6 and 8.

- 17% planned to use GARP in the next 12 Months
- 31% had used GARP within their own company
- 31% had used GARP to assess external organizations"[17]

While we don't know how many of the 1700 members responded, at most this means that 527 companies have used the GARP® model to assess their own records management programs, out of all the thousands of companies in the world. At average survey response rates of 25% - 30%, it is more likely that between 130 and 160 companies have used it to assess their own records management programs.

The GARP® principles themselves are fairly innocuous and do not represent anything new or earth shattering in the industry. It is hard to object to the statements that these principles make about how records should be created, maintained and destroyed. When discussing the advent of the GARP® principles and the IGMM, ARMA states:

"It has not always been easy to describe what 'good recordkeeping' looks like. Yet, this question gains in importance as regulators, shareholders, and customers are increasingly concerned about the business practices of the organizations. ARMA International recognized that a clear statement of 'Generally Accepted Recordkeeping Principles®' (GARP®) would guide:

- CEOs in determining how to protect their organizations in the use of information assets;
- Legislators in crafting legislation meant to hold organizations accountable; and
- Records management professionals in designing comprehensive and effective records management programs."[18]

This statement indicates that the intent of the principles is to act as a guideline for records management professionals to use to develop robust records management programs that support their businesses and promote

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17 CPSD Response to PG&E Data Request 6.

18 ARMA International, ARMA's Information Governance Maturity Model, 2009.

compliance with the appropriate regulatory authorities. The model is meant to help records managers improve their programs based on the state of the program at a point in time, working towards a desired end state. In order to use the model to evaluate a program over time, the organization must conduct multiple assessments. ARMA published an assessment tool for its members on April 17, 2012. The assessment tutorial provides guidance about how and how often an organization should conduct an assessment (broadly across the organization or narrowly within a department; baseline and then periodically to gauge improvement) and ways to use the results of the assessment (examples below).[19]

- Establish a program baseline for future comparisons
- Identify deficiencies in current processes that are likely to be risky for the organization
- Prepare for an audit
- Measure improvement or regression from a previous assessment
- Support requests for new processes or electronic tools needed to improve practices

In other words, GARP® is an active tool designed to help improve an active program. It is not designed to conduct an historical retrospective. This is evident in the results provided by CPSD's experts. The assessment scores do not allow for or reflect any evolution in the program over time, even as the narrative discusses various organizational and program changes.[20]

I find that PG&E's records management program did change and improve over this period, however. For example, a review of the evolution of the records management-specific guidance documents (from Standard Practice (SP) 210.4-3 and SP 210.4-4 to GOV7001S) shows a more sophisticated approach to creating and managing records and provides the

19 ARMA International, GARP® Assessment Tool Tutorial, 2012.

20 Duller/North Report at 6-28. Various examples throughout the report, including, "[t]he Divisions' instructions to transfer inactive records to the Records Center did not appear in the standard practices documents [...] until 1993."

user with much more direction as well as pointing towards contacts for further support.

Similarly, reviewing the records retention schedules demonstrates several changes in the program over time. PG&E's oldest existing records retention schedule, entitled "Records Retention Schedule for Records in the Divisions," contains only four columns: F.P.C. No., Record Title, and Retention: Office/Total.[21] Each of these columns contains abbreviated information, as shown in the example below.

F.P.C. No.	Record Title	Retention	
		Office	Total
35(c)	Absolving Service Agreements	T	T + 1

Figure 1: PG&E 1964 Records Retention Schedule – Detail

Supporting the 1964 schedule, staff could refer to both SP 210.4-3 and SP 210.4-4. Both documents contain the following statements, defining terms on the schedule itself.

"F.P.C. Number. Refers to comparable record number in the Federal Power Commission's blue book entitled "Regulations to Govern the Preservation of Records of Public Utilities and Licensees."[22]

"Retention Codes. The codes used in the 'Retention' columns are explained below:

a. Number - Number of years (or months) retention in addition to the current year (or month). Numbers represent years unless indicated otherwise.

b. T - Until terminated, superseded, closed, expired, canceled, redeemed, disposed of, surrendered, discharged, discontinued, retired, or until the record has served its purpose.

c. P - Permanent.

[21] P2-195, Records Retention Schedule for Records in the Division, September 1, 1964.

[22] P2-192, SP 210.4-3: Retention of Records – General Office Departments, March 1, 1959 and P2-193, SP 210.4-4: Retention of Records Divisions, August 1, 1959.

d. X - Indefinite. Subject to annual review."[23]

Figure 2: PG&E SP 210.4-3 and SP 210.4-4 - Detail

Even taken together, these documents offer only limited insight into the program in 1964, yet Dr. Duller and Ms. North depend on them to represent the entire program, basing several of their alleged recordkeeping violations on the contents of the 1964 schedule.[24]

We continue to see evidence of change in PG&E's records management program by looking at later retention schedules. The 1994 schedule begins with a statement of the applicability and validity of the retention instructions it contains, as shown below. Warning the user that there may be other requirements that must be met is a good start. It would be more helpful still if the document also referred the user to the Legal Department or other authority to confirm the existence of any additional requirements or to answer any questions or clarify any concerns about the retention requirements, but it is a start.[25] [26]

Pacific Gas & Electric Company Guide to Retention of Company Documents[27]

"Retention periods shown are only valid as of the date the guide is printed. Additional retention may be necessary to comply with other legal requirements or regulation changes placed into effect since the guide was printed."[28]

Figure 3: PG&E 1994 Retention Schedule

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23 P2-192, SP 210.4-3: Retention of Records – General Office Departments, March 1, 1959 and P2-193, SP 210.4-4: Retention of Records Divisions, August 1, 1959.

24 Duller/North Supplement.

25 The History File Requirements Manual corrects this oversight by directing staff to bring questions and suggestions to the Director of Standards in Gas Systems Technical Services; see P2-1477, History File Requirements Manual, updated February 14, 1996.

26 P2-205, Retaining and Destroying Records – Operating Regions, 6/1/86, also refers staff to the Supervisor of Records for assistance in answering questions, developing retention periods and carrying out records retention.

27 P2-212, Pacific Gas & Electric Company Guide to Retention of Company Documents, April 6, 1994.

28 P2-212, Pacific Gas & Electric Company Guide to Retention of Company Documents, April 6, 1994.

Record Title	Form #	Justification	Retention Period
Accounts Receivable		FERC 16	1. RECORDS OF ACCOUNTS RECEIVABLE PERTAINING TO SALES OF UTILITY PLANT - RETAIN 3 YEARS AFTER SETTLEMENT. 2. RECORDS OF REGISTER OF ACCOUNTS RECEIVABLE & INDEXES THERETO & SUMMARIES OF DISTRIBUTION - RETAIN 3 YEARS AFTER SETTLEMENT. 3. ACCOUNTING COPIES OF INVOICES ISSUED & SUPPORTING DOCUMENTS - RETAIN 3 YEARS AFTER SETTLEMENT. 4. ACCOUNTING COPIES OF AUTHORIZATIONS FOR CHARGES AND SUPPORTING DOCUMENTS - RETAIN 3 YEARS AFTER SETTLEMENT. 5. PERIODIC STATEMENTS OF UNSETTLED ACCOUNTS, EXCEPT TRIAL BALANCES MAY BE DESTROYED AT OPTION. 6. SCHEDULES OF INVOICES TO BE ISSUED MAY BE DESTROYED AT OPTION.

Figure 4: PG&E 1994 Retention Schedule Detail[29]

As seen in the figure above, the 1994 schedule contains more detailed information than the 1964 schedule, including specific form numbers covered by each record series, where applicable, and references to "justification" for the retention period. This justification ranges from a

29 P2-212, Pacific Gas & Electric Company Guide to Retention of Company Documents, April 6, 1994.

specific citation (e.g., FERC 14a) to an office (e.g., Controller). While it is not explained, it is possible to infer that the reference to an office implies an operational rather than a legal retention requirement. Finally, the document includes detailed retention instructions, rather than just a time period, as shown in the example above.

PG&E provides more information to its staff over time, relating to records management responsibilities. In 2010, PG&E issued two guidance documents. Originally issued in 2008, USP 4 was updated in April 2010. The 2010 version of USP 4 was only in effect until October 2010, when it was replaced by GOV-7001S.

GOV-7001S: Records Retention and Disposal Standard[30] "This standard describes the responsibility for the retention and disposition of records--hardcopy and electronic--required for legal and business purposes."[31]
USP4: Records Retention and Disposal Guidance for Transmission & Distribution Systems.[32]

Figure 5: PG&E 2010 Records Retention Documents

The 2010 documents are much more detailed, containing direction to business unit leaders to create, maintain and dispose of or preserve[33] necessary records; discussing the suspension of destruction in the event of legal holds; and providing detailed records descriptions with associated citations or other (e.g., operational) justification for the indicated retention periods. The Duller/North Report's GARP® score for records retention comprises two scores: 2.5 for the GARP® principle of Retention and 2.0 for the principle of Disposition.[34] Both of these scores fall into the *Level 2 - In*

30 P2-4, GOV-7001S, Records Retention and Disposal Standard, October 1, 2010.

31 P2-4, GOV-7001S, Records Retention and Disposal Standard, October 1, 2010.

32 P2-3, USP4: Records Retention and Disposal Guidance for Transmission & Distribution Systems, grouped by SVP Direct Report Business Area, April 16, 2010.

33 The final action taken on a record following its inactive retention period is called Disposition. For the majority of an organization's records, the final disposition will be destruction. For a small percentage (typically 2% - 5%), the final disposition will be permanent preservation (archival storage).

34 Duller/North Report at 1-9.

Development range of the IGMM. But would the 1964 schedule really meet that definition? And don't the later retention schedules actually go beyond that level?

It is not fair to subject the 1964 document to the requirements of GARP®, which were not issued until 2009. However, if one did attempt to judge the 1964 schedule as a standalone document by the principles established in GARP®, it most likely would fall into *Level 1 – Sub-standard.*

However, in my opinion, the 1994 and 2010 documents meet the requirements of *Level 3 – Essential.* Given the way the retention schedules and other records policy documents vary over the 50 year period in question, judging the entire program based on these few documents is extremely difficult. How then are we supposed to evaluate Dr. Duller's and Ms. North's GARP® score for retention policy? Did they average the early and late scores? Did they pick a point in time? Was it a subjective judgment? This example illustrates the fact that GARP® is not an appropriate tool to evaluate a program over a 50-year time period.

I want to add that even with the changes apparent in the 2010 documents, there is still room for improvement in PG&E's program, as Dr. Duller and Ms. North note. PG&E realizes this as well. As discussed in the section of PG&E's future program, the Director of Information Management Compliance has as a top priority the creation of a new, comprehensive enterprise-wide records retention program. Regardless of that fact, however, there was clear development and improvement during the 50-year period in question and yet the GARP®-based evaluation doesn't have a way to acknowledge those changes.

There is one more point I'd like to make with regard to Dr. Duller's and Ms. North's use of GARP® to assess PG&E's historic records management program. The language they use in their impact statements is conditional, rather than absolute. They say that, based on their findings, the historic records management program 'leaves PG&E exposed' to certain consequences or that 'this approach may well result in' some undesired end state.[35] This conditional language is consistent with the phrasing of the

[35] Duller/North Report.

IGMM itself, which states, in part, that "organizations that identify primarily with these [Level 1] descriptions should be concerned that their programs will not meet legal or regulatory scrutiny. […] However, in Level 2, the organization *is still vulnerable*[36] to legal and regulatory scrutiny since practices are ill-defined and still largely ad hoc in nature."[37] In other words, the model self-describes a predictive assessment, aimed at helping an organization improve, not a ranking assessment where an organization can "pass" or "fail."

a. Process-centric vs. records-centric evaluation

Over time, PG&E used a decentralized approach to records management, assigning responsibility for creating, managing and dispositioning (disposing or preserving, as appropriate) records to the divisions and departments who used the records to conduct business. This approach aligns records to those business processes that create and use them. The process-centric approach is more intuitive for staff and is a trend in records management today.[38] PG&E began applying this approach 50 years ago, dispersing recordkeeping requirements and instructions to staff among different documents created and maintained by different departments throughout the organization.

By contrast, Dr. Duller and Ms. North are seeking a centralized program, and evaluating the documentary evidence of PG&E's historic program through a records-centric lens rather than allowing for a process-centric approach. For example, their focus on the number and dispersed locations of the job folders comes from a pure records management perspective, not taking into account the needs of the engineers who create and use the records stored in the job folders.

> "This report finds that PG&E's pipeline records were widely distributed and poorly controlled across the Gas Transmission

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36 Emphasis added.

37 GARP® Information Governance Maturity Model, ARMA International, 2009.

38 *See for example,* Dunn, Maura; Kirtley, Robert and Karas, Lee, "The New Business of Managing Information." Metropolitan Corporate Counsel, September 2009, p 37; or Coulson, Jim; Bernardi, Arleen and Coppola, Daniel. "Writing and Enforcing Effective Records Retention Policies," For the Legal Eye, A Huron Consulting Group Publication, Volume 1, Issue 1, Summer 2007, pp. 5-6.

> Division. On the basis of PG&E's own records catalog, we estimate that prior to the MAOP document consolidation project and before San Bruno, PG&E had stored its pipeline records for any given job in up to 10 different locations, without the necessary document control processes in place to track their location, existence or contents."[39]

This point seems extremely bothersome to Dr. Duller and Ms. North, as they refer to the distribution of the job folders many times throughout their report. They highlight the location and number of job folders in a series of discussions and illustrate the point with a number of tables and figures (see below).

- Table 6-8: Impact Statement: Lack of Complete Pipeline Records and Job Folders
- Table 6-10: PG&E Job Folder Statistics (as of December 9, 2011)
- Table 6-12: Impact Statement: Records Management (RM) Processes (Job Files Tracking Systems)
- Table 6-16: Job Numbers and Job Folders (not held at Walnut Creek; and not held at Walnut Creek or Bayshore) as recorded in the Emeryville Database, February 2012
- Table 6-17: All Job Numbers and Job Folders in (as recorded in the Emeryville Database, February 2012)
- Table 6-18: Impact Statement: RM Processes (Duplicate Job Files and Folders)
- Table 6-21: Job Folders Scanned Onsite in PG&E Offices, but not transferred to Emeryville
- Table 6-23: PG&E's Top 20 Jobs in terms of Job folders (based upon PG&E's Emeryville Catalog (February 2012)
- Figure 6-2: An illustration of the expected relationship with Pipeline-related Jobs, Job Folders and related documentation

39 Duller/North Report at 1-7.

- Figure 6-3: An illustration of the actual relationship with Pipeline-related Jobs, Job Folders and related documentation
- Figure 6-4: An illustration of the number of job folders held in each of the three main storage locations (Walnut Creek, Bayshore, and all other Offices) Based upon the ECTS Data Catalog
- Figure 6-5: An illustration of the number of job folders held in each of the three main storage locations (Walnut Creek, Bayshore, and all other Offices) Based upon the Emeryville Data Catalog (February 2012)
- Figure 6-7: PG&E Job Folder Age Variance (within any given job)
- Figure 6-8: The evolution of a PG&E job and its accompanying job folders
- Figure 6-9: Frequency distribution of the number of PG&E Jobs Folders per Job[40]

They call out the dispersion of the folders across the organization: "[t]o illustrate just how dispersed their record keeping was, in respect of its pipeline-related information, we calculate that PG&E had:

- 12446 jobs with their job folders stored across 2 locations;
- 1711 jobs with their job folders stored across 3 locations;
- 293 jobs with their job folders stored across 4 locations;
- 45 jobs with their job folders stored across 5 locations;
- 8 jobs with their job folders stored across 6 locations;
- 4 jobs with their job folders stored across 7 locations;
- 1 job with their (sic) job folders stored across 10 locations."[41]

They call into question the data integrity of all subsequent data at PG&E: "The accuracy, completeness and quality of any of PG&E's digital datasets derived from its hardcopy pipeline records were at risk as PG&E

40 Duller/North Report.

41 Duller/North Report at 1-8.

did not have a complete and comprehensive master set of all job folders and files in one place that they could consult as they compiled their data."[42] Dr. Duller and Ms. North mention job files or job folders dozens of times in their report. They use this one fact – the existence of multiple, geographically-distributed copies of folders – to support their findings of sub-standard records management practices across all dimensions of GARP®. The importance of this one fact – the existence of multiple job folders – is thereby increased beyond just one fact: it has impact on the GARP® scores for Strategy; Policies, Standards and Procedures; Records Management Processes; Storage; and Technology. This repeated re-statement of the same fact inflates the impact that the multiple job folders have on Dr. Duller's and Ms. North's overall assessment of the PG&E records management program.

Moving beyond just the mere fact of the existence of the multiple job folders, Dr. Duller and Ms. North then discuss the way in which PG&E managed these records over time. They refer to a lack of "necessary document control processes […] to track their location, existence or contents."[43] I assume that in this sentence Dr. Duller and Ms. North are referring to traditional records management cataloging and indexing tools, useful to records managers and other users in locating information. But this is not how engineers look for or use documents. Instead, engineers start with physical assets (in this case, pipeline components) and work back to documents, as shown by the approach developed by PG&E's engineers for the MAOP Validation project. The engineers' focus is on the real world, physical assets, and only on the documents as they provide supporting information related to those assets, not the other way around. This type of approach is not uncommon outside of records management and other document-centric industries.

I'd like to offer an example from my own professional experience. In developing a digital asset management strategy for the Smithsonian Museum of Natural History, I started out thinking of the digitization of

42 Duller/North Report at 1-10.

43 Duller/North Report at 1-7.

hardcopy documents and photographs. I thought about the need to catalog physical objects along with the documents that described them, but the scientists on the steering committee were confused by what they called 'an accountant's view' of the museum – in other words, a traditional catalog of documents linked to museum assets was not helpful to them. Instead, together we developed a matrixed approach to identifying collection objects, unaccessioned collection objects and the information assets associated both directly and indirectly with the objects. In addition to cataloging/bibliographic metadata, we defined technical, scientific, transactional and access metadata. The scientists who both created and used the records were able to design a strategy that met all of their needs, not only the needs of records managers or librarians who focus first on documents and try to access the physical assets through them, instead of the other way around.[44]

b. De-centralized Versus Centralized Records Management Program

Dr. Duller and Ms. North make the point repeatedly that PG&E did not have a central point of authority nor a centralized program for records management.

> "PG&E appears to have evolved with a decentralized records management structure, with the responsibility for managing records residing firmly within each Division and undertaken locally by engineers and a number of document control clerks or their equivalent."**45**

"At the time of the San Bruno pipeline rupture and fire PG&E did not have a centralized records management function. However, there were a number of employees who were tasked with the management of specific gas records located in different areas of PG&E."**46**

In making this point, Dr. Duller and Ms. North seem to assume that central control is always more desirable than distributed control. The GARP® principle of Accountability supports this assumption, but you

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44 Booz Allen Hamilton, Inc., Smithsonian Institution National Museum of Natural History Digital Asset Management Strategy, September 2007.

45 Duller/North Report at 6-26.

46 Duller/North Report at 6-27.

must consider the history of the program, the technology available and the operating conditions fifty years ago. PG&E's footprint covers much of the state of California, encompassing more than 6,000 miles of gas transmission pipelines. Consider the options available in the mid-twentieth century for sharing information.

Drawings were largely drawn by hand, as AutoCAD or other assisted drawing tools that produce electronic files were not yet available. The Design team drew the plans, but the Construction team was responsible for actually constructing the pipelines onsite. They needed drawings with them, onsite. Before Construction could start building, though, Purchasing had to order all the components. Working from the drawings, engineers would develop lists of needed components and materials and hand those off to Purchasing. Purchasing had to share those lists with the vendors; they may have needed the drawings to illustrate a particular type of component or the intended use of some material. So, if there were only one set of drawings, they would be passed from Design to the engineers developing the materials lists, to Purchasing, possibly shared with the vendors, then to the Construction team. Covering many miles between the office where the design was done, the vendor sites where the components and materials were created, and the construction site, someone would be driving around with those plans all day long. Making and distributing copies was really the only feasible option at the time.

As technology advanced, PG&E and other companies took advantage of the opportunities for efficiency that it offered. In the last quarter of the twentieth century, engineers started using AutoCAD systems so that drawings were stored electronically and could be printed more readily rather than hand-copied. They instituted finance systems for purchasing and approved vendor lists (or something similar) to instill consistency in the way that information was passed to vendors and that vendors prepared materials and associated documentation in return. Ultimately, they started to use GIS to hold data related to pipelines in a new way – as data instead of as documents – with the

goal of making it more readily accessible to more than one person at a time.

So given the technology available, the logistics involved in copying and moving copies of drawings and other documents around the state, a decentralized approach made sense.

Dr. Duller and Ms. North acknowledge that while responsibility was not centralized, it was placed with people in authority.

> "At all times throughout the period 1950 to 2010 PG&E was aware of the requirement to retain and maintain specific types of documents for various lengths of time. With few exceptions, senior management was designated with the responsibility to comply."[47]

> "PG&E had retention standards from the 1950s to the present day, however it appears they were not well known around the organization and required that Divisions created their own retention schedules."[48]

Distributed operations were required in order to effectively and safely manage the thousands of miles of pipeline for which PG&E was responsible. Transmitting information was by necessity manual – copies of drawings or documents had to be hand carried or sent through the mail from one office to another. In fact, as discussed above, making several sets of key drawings and distributing them to the various offices and organizations that needed them was an efficient and effective solution to the problem of sharing critical information across a large geographic footprint. As the senior managers referred to by Dr. Duller and Ms. North were responsible for the safe operations of their divisions, they were in the best position to understand the information they needed, to create retention schedules that met their operational needs as well as the legal requirements, and to carry out the implementation of those schedules.

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[47] Duller/North Report at 6-37.

[48] Duller/North Report at 6-38.

Brian Daubin, Director - Production Maps and Records, a PG&E mechanical engineer with the company for 10 years and formerly Design Unit Supervisor, now leads a segment of the MAOP Validation project.[49] In discussing with him the issue of multiple folders related to a single job file, Mr. Daubin described a common practice to copy and distribute sets of drawings and documents to the field so that the staff onsite would have what they need. Staff in the field may have added notes or other information to their own copies of the files, to facilitate their work, and would have sent copies of any redlines or other updates back to be incorporated into the master job file. In this way, while multiple folders may exist for a single job number, standard operating procedures dictated that updates be transmitted and incorporated in a timely manner to the master job file. The distributed files were maintained onsite to support ongoing operations. Dr. Duller and Ms. North conclude that the existence of multiple folders, located in different locations, is by definition negative. However, there is no evidence to support this conclusion. There are many job file numbers that span years or decades as work continued to be performed on a single pipeline component over time. Multiple job folders contain information relating to a single job folder because this is the way the work happened. Ideally, from a records management perspective, someone could have collected all the job folders, created an updated Master Job File and a central catalog or index, and either stored that Master Job File centrally with controlled circulation or made and distributed a new set of copies to the field. This may have been ideal, but it is not very feasible – and PG&E was faced with making practical decisions as they operated a large, complex business.

While today's technology allows for greater centralization through the use of remote access to electronically stored information instead of paper, there are still advantages to distributed information management. "[D]ata resides in multiple, and often redundant, server farms that are commonly located around the world, increasingly in spaces the

49 Interview with Brian Daubin, Emeryville, May 15, 2012.

organization doesn't own and over which it has little, if any, control. Examples include cloud-based storage solutions from commercial providers, collaborative sites on space operated by third parties, and social media sites. [...] Because of the decentralized nature of this sort of data system, the ad hoc way in which most of the repositories [e.g., SharePoint® sites] are created and used, and the sheer number of nodes on the system, centralized control is nearly impossible."[50] Throughout the history of records management, there has always been an advantage to storing the information near where it is created and used. Technology allows for greater remote access today. Previously, more staff may have been available to manage and provide access to records stored in centralized records centers. But either way, the fact is that the people who create the information have the greatest need for it on a daily basis – and providing access to them is the most important part of a records management program.

c. Benchmarking: PG&E's records management program is not unlike other utilities' programs

Rather than basing their assessment entirely on the ideals represented by GARP®, particularly as assessing the degree to which an organization exhibited those principles over an extended period of time is not a purpose for which the model was intended nor is it well suited, Dr. Duller and Ms. North could instead have looked at other utilities, or even other U.S.-based companies operating over the same period of time.

By way of example, ComEd, An Exelon Company, conducted a survey in late 2011/early 2012 on records management practices in utilities.[51] While this is a contemporary snapshot of the state of records management in the utility industry, it is useful to show what could have been learned had the CPSD's experts attempted to compare PG&E's

50 Gatewood, Brent, CRM; Kain, John; and Montaña, John C., J.D., FAI "Drawing a New Battle Plan for Conquering Key Information Management Risks." Information Management: An ARMA International Publication, March-April 2012, pp. 35-39.

51 ComEd Records Management Benchmarking Results Summary, updated March 2, 2012. PG&E is Company "C" in the study.

records management program to its peers over time. The survey also provides insight into the current state of records management in the utility industry. Ten utilities participated in the survey, as shown in the table below.

ComEd Survey Participants	
• AEP	• Kansas City Power & Light (KCP&L)
• Central Vermont Public Service (CVPS)	• NSTAR
• ComEd	• Pacific Gas & Electric
• Consolidated Edison (ConED)	• PSE&G
• Florida Power & Light (FPL)	• Southern California Edison (SCE)

Figure 6: ComEd Records Management Survey Participants[52]

A key finding from the survey indicates that 100% of the respondents store records in local offices/departments. Most (90%) also store their records in an off-site central repository, whether company-owned or owned by a third-party."[53] Dr. Duller and Ms. North imply that PG&E should have kept all the job folders in a central repository, however, this is not practical and, based on this survey, central management of job files is not the norm.

Similarly, the survey indicates that most companies employ a variety of methods to manage their information – both hardcopy and electronic. 100% of the respondents indicated they still maintain hardcopy records in boxes and file cabinets and that they have some level of scanning activity underway to convert hardcopies to electronic form.[54]

Only two companies indicated that a centralized records management program had complete responsibility for managing records on a day-to-day basis. The remaining eight indicated that this responsibility resides with individual business units or departments.

52 ComEd Records Management Benchmarking Results Summary, updated March 2, 2012.

53 ComEd Records Management Benchmarking Results Summary, updated March 2, 2012.

54 ComEd Records Management Benchmarking Results Summary, updated March 2, 2012; responses ranged from none to less than 50% of all documents.

Four companies also indicated that IT has some responsibility for managing central IT resources that may contain records (e.g., email).[55]

Perhaps the most interesting result from this survey is that PG&E's responses do not stand out from the pack. Two of the ten companies seem to be further ahead than the others, but the remaining eight respondents reported very similar conditions in terms of control, program effectiveness, and satisfaction with their programs. For the most part, the central records centers are under control, which is true for PG&E; there is a broad mix of paper and electronic information stored throughout the organization; and the companies are working to increase control, decrease duplication and optimize costs. Mr. James Howe, in Chapter 1B of PG&E's June 25, 2012, submission provides additional industry examples that support my opinion that PG&E's historic records management program does not stand out as less effective than its peers.

Dr. Duller and Ms. North, and, in fact, the CPUC in its many responses and reports throughout this proceeding, maintain that good recordkeeping has always incorporated the NTSB's recommendations related to 'traceable, verifiable and complete' records. In other words, they maintain that this requirement is not new. Emmett Leahy states:

> "The four essential elements in the management of records have not changed in modern times. They are still: (1) The day to day function of record making and record filing; (2) records of value must be preserved; (3) records preserved must have the physical facilities and finding media to provide access to them; and (4) the experience contained in records must be drawn upon and put to work."[56]

It is possible to interpret these four elements as incorporating "traceable, verifiable and complete." One can safely assume that all records managers, and in fact all staff in an organization, do not set out

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[55] ComEd Records Management Benchmarking Results – Compilation of Results.

[56] Leahy, Emmett J., "Modern Records Management," The American Archivist, Volume XII Number 3, July 1949, pp. 231-242.

to create incomplete records. The need for the information to be accurate is also implied in these four elements – again, staff are not setting out to create inaccurate records. However, the conjunction of these words in this particular context, i.e., as part of the NTSB's safety recommendations following the San Bruno accident, brings out a specific, and broader, meaning. When talking about a pipeline and its components, the need to trace each component through its entire lifecycle, starting from its manufacture through all repairs or other activities in which it is involved, requires either an army of engineers and records clerks devoted to nothing but making cross-references and delivering hardcopy records from person to person and team to team, as needed, or a sophisticated, integrated electronic information system that allows the linking of disparate pieces of data in multiple formats, created by different people and teams both within and outside an organization. This technology was not available throughout most of the last century. PG&E and other utilities created elaborate, sometimes duplicative hardcopy file systems to facilitate access to necessary information, but they could not create the same depth and breadth of integrated information that NTSB contemplates in "traceable, verifiable and complete" – and as will be available in PG&E's Project Mariner: the new, integrated Gas Asset Knowledge Management system.

The evolution of a requirement like this in regulation is not unprecedented. Our court system has a long history of relying on primary documentation as the best evidence of a transaction or other activity. Typical discovery requests ask for all 'documents' related to a matter. However, the evolution of information technology introduced a number of new channels for 'documentation' not explicitly covered in older versions of the rules of evidence. In the groundbreaking case of *Zubulake v. UBS Warburg*, United States District Court Judge Shira A. Scheindlin issued a series of precedent-setting decisions relating to the use of emails and other electronically stored information as evidence in that case. These decisions related to the following critical elements of discovery.

• The scope of a party's duty to preserve electronic evidence during the course of litigation
• Lawyer's duty to monitor their clients' compliance with electronic data preservation and production
• Data sampling
• The ability for the disclosing party to shift the costs of restoring "inaccessible" back up tapes to the requesting party
• The imposition of sanctions for the spoliation (or destruction) of electronic evidence

Figure 7: Zubulake eDiscovery Decisions[57]

At the same time, the Advisory Committee on Civil Rules was studying the issue and wrestling with the question of "whether amendments specifically addressing electronic discovery were necessary."[58] The Committee had been discussing this issue since 1996 without coming to a conclusion. Following Judge Scheindlin's decisions, however, they released amendments that went into effect on December 1, 2006. These amendments addressed roughly the same areas as Judge Scheindlin's individual decisions in the Zubulake case.

eDiscovery Amendments to the Federal Rules of Civil Procedure	
(a)	definition of discoverable material
(b)	early attention to issues relating to electronic discovery, including the format of production
(c)	discovery of electronically stored information from sources that are not reasonably accessible
(d)	the procedure for asserting claim of privilege or work product protection after production
(e)	a "safe harbor" limit on sanctions under Rule 37 for the loss of electronically stored information as a result of the routine operation of computer systems

57 "Zubulake v. UBS Warburg" Kroll Ontrack website, accessed May 30, 2012.

58 "E-Discovery Amendments to the Federal Rules of Civil Procedure Go Into Effect Today" Posted on December 1, 2006, by K&L Gates; K&L Gates Electronic Discovery Law website, accessed May 30, 2012.

Figure 8: eDiscovery Amendments of 2006[59]

The Committee struggled to publish these amendments for nearly ten years not because they were unclear on the appropriateness of using electronically stored information as evidence, but because the original Civil Rules should have been broad enough to allow that use without specifically calling out the technology. However, the disruptive nature of technology necessitated an explicit change to the rules.

A quick survey of annual reports filed with the Securities and Exchange Commission for 2011 indicates that PG&E is not the only energy company concerned about the new requirement for "traceable, verifiable and complete" records to support MAOP, as shown in the table below. These companies identified this pending regulatory change as not only a new requirement but a potential risk to their future financial performance as the costs for implementation and impacts on future operations are as yet unknown.

Spectra Energy[60]
Segment Results: U.S. Transmission *Matters Affecting Future U.S. Transmission Results* Our interstate pipeline operations are subject to pipeline safety regulation administered by PHMSA of the U.S. Department of Transportation. These laws and regulations require us to comply with a significant set of requirements for the design, construction, maintenance and operation of our interstate pipelines. On January 3, 2012, the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 was signed into law. This Act amends the Pipeline Safety Act in a number of significant ways, including: * Authorizing PHMSA to assess higher penalties for violations of its regulations, * Requiring PHMSA to adopt appropriate regulations within two years requiring the use of automatic or remote-controlled shutoff valves on new or rebuilt pipeline

59 "E-Discovery Amendments to the Federal Rules of Civil Procedure Go Into Effect Today" Posted on December 1, 2006, by K&L Gates; K&L Gates Electronic Discovery Law website, accessed May 30, 2012.

60 Spectra Energy 10K, filed February 27, 2012.

Spectra Energy[60]
facilities and to perform a study on the application of such technology to existing pipeline facilities in High Consequence Areas (HCAs), * Requiring operators of pipelines to verify maximum allowable operating pressure and report exceedances within five days, * Requiring PHMSA to study and report on the adequacy of soil cover requirements in HCAs, and * Requiring PHMSA to evaluate in detail whether integrity management requirements should be expanded to pipeline segments outside of HCAs (where the requirements currently apply). In August 2011, PHMSA initiated an Advance Notice of Proposed Rulemaking announcing its consideration of substantial revisions in is regulations to increase pipeline safety. PHMSA also has issued an Advisory Bulletin which among other things, advises pipeline operators that if they are relying on design, construction, inspection, testing, or other data to determine the pressures at which their pipelines should operate, the records of that data must be traceable, verifiable and complete. These legislative and regulatory changes, when implemented, will impose additional costs on new pipeline projects as well as on existing operations. Because the extent of the new requirements and the timing of their application is still uncertain, we cannot reasonably determine the impact that these changes will have on our operations, earnings, financial condition and cash flows at this time.

Figure 9: Spectra Energy 10K Excerpt

Transcontinental Gas Pipeline Corporation[61]

Risk Factors (Forward-Looking Statements)

Our costs of testing, maintaining or repairing our facilities may exceed our expectations and the FERC or competition in our markets may not allow us to recover such costs in the rates we charge for our services.

We have experienced leaks and ruptures on our gas pipeline system, including a rupture near Appomattox, Virginia in 2008 and a rupture near Sweet Water, Alabama in 2011. We could experience additional unexpected leaks or ruptures on our gas pipeline system, or be required by regulatory authorities to test or undertake modifications to our systems that could result in a material adverse impact on our business, financial condition and the results of operations if the costs of testing, maintaining or repairing our facilities exceed current expectations and the FERC or competition in our markets do not allow us to recover such costs in the rates we charge for our service. For example, in response to a recent third party pipeline rupture, PHMSA issued an Advisory Bulletin which, among other things, advises pipeline operators that if they are relying on design, construction, inspection, testing, or other data to determine the pressures at which their pipelines should operate, the records of that data must be traceable, verifiable and complete. More recently, the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 became law and under this statute, PHMSA may issue additional regulations addressing such records. Locating such records and, in the absence of any such records, verifying maximum pressures through physical testing or modifying or replacing facilities to meet the demands of such pressures, could significantly increase our costs. Additionally, failure to locate such records or verify maximum pressures could result in reductions of allowable operating pressures, which would reduce available capacity on our pipeline.

Figure 10: Transcontinental Gas Pipeline Corporation 10K Excerpt

61 Transcontinental Gas Pipeline Corporation 2011 10K, filed February 27, 2012.

Clayton Williams Energy, Inc.[62]

Risk Factors (Forward-Looking Statements)

Part I, Item 1A. Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2010, included certain risk factors that could materially affect our business, financial condition or future results. Those Risk Factors have not materially changed, except as set forth below:

Our costs of testing, maintaining or repairing our facilities may exceed our expectations, and the FERC or competition in our markets may not allow us to recover such costs in the rates we charge for our services.

We could experience unexpected leaks or ruptures on our gas pipeline system, or be required by regulatory authorities to test or undertake modifications to our systems that could result in a material adverse impact on our business, financial condition, and results of operations if the cost of testing, maintaining, or repairing our facilities exceed current expectations and the FERC or competition in our markets do not allow us to recover such costs in the rates we charge for our service. For example, in response to a recent third party pipeline rupture, the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration issued an advisory bulletin which, among other things, advises pipeline operators that if they are relying on design, construction, inspection, testing or other data to determine the pressures at which their pipelines should operate, the records of that data must be traceable, verifiable, and complete. Locating such records and, in the absence of any such records, verifying maximum pressures through physical testing or modifying or replacing facilities to meet the demands of such pressures, could significantly increase our costs. Additionally, failure to locate such records could result in reductions of allowable operating pressures, which would reduce available capacity on our pipeline.

Figure 11: Clayton Williams Energy 10K Excerpt

62 Clayton Williams Energy, Inc. 2011 10K, filed May 5, 2012.

Northwest Pipeline GP[63]

Risk Factors (Forward-Looking Statements)

Our costs of testing, maintaining or repairing our facilities may exceed our expectations, and the FERC or competition in our markets may not allow us to recover such costs in the rates we charge for our services.

We could experience unexpected leaks or ruptures on our gas pipeline system, or be required by regulatory authorities to test or undertake modifications to our systems that could result in a material adverse impact on our business, financial condition, and results of operations if the cost of testing, maintaining, or repairing our facilities exceed current expectations and the FERC or competition in our markets do not allow us to recover such costs in the rates we charge for our service. For example, in response to a recent third party pipeline rupture, PHMSA issued an Advisory Bulletin which, among other things, advises pipeline operators that if they are relying on design, construction, inspection, testing or other data to determine the pressures at which their pipelines should operate, the records of that data must be traceable, verifiable, and complete. More recently, the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 became law and under this statute PHMSA may issue additional regulations addressing such records. Locating such records and, in the absence of any such records, verifying maximum pressures through physical testing or modifying or replacing facilities to meet the demands of such pressures, could significantly increase our costs. Additionally, failure to locate such records or verify maximum pressures could result in reductions of allowable operating pressures, which would reduce available capacity on our pipeline.

Figure 12: Northwest Pipeline GP 10K Excerpt

Similarly, in 2011, Xcel Energy of Denver, CO, sought permission to raise its rates to cover increased costs related to its integrity management program.[64]

63 Northwest Pipeline GP 2011 10K, filed February 27, 2012.

64 Letter from Xcel Energy, Denver, CO, to Public Utilities Commission of the State of Colorado, October 3, 2011.

Looking at the introduction of information technology over the last five decades sharpens the focus of some of the concerns around PG&E's records management program. The use of information technology not just as a more sophisticated typewriter or ledger – that is, not just to capture the results of work performed outside of the world of information technology – but actually to use information technology to perform work is new. Models and calculations for validating MAOP can be captured in spreadsheets and performed more quickly than a human can do so. However, there are new opportunities for error in using more sophisticated technology, as well. For records management, the implication is that you must act much earlier in the life cycle to capture the information – it is not good enough to wait until the work has been completed to try and capture the records.[65] You will have lost the opportunity to do so effectively and efficiently. Furthermore, the nature of the records themselves is changing rapidly – no longer a static collection of data that can be captured and retained at a point in time. Instead, data are dynamic.

> "For example, information viewed within an enterprise resource planning system looks like a single record, but it's not. It's a temporary aggregation of numbers and other data pulled from other sources. Log off, and the thing once viewed on the screen vanishes, but the data still resides some place, or places, ready to be assembled the next time someone wants to view it. In the interim, some of the data may change, so the record - even 10 seconds later - may not be the same as the previous one."[66]

PG&E developed a GIS system in the 1990s. The GIS offers a number of advantages over paper maps and drawings. Virtual 'layers' of information can be viewed at once, bringing increased visibility to

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65 National Archives and Records Administration, "Putting Records First" - Records Management Services: Records Management Service Components Program," December 2006.

66 Gatewood, Brent, CRM; Kain, John; and Montaña, John C., J.D., FAI "Drawing a New Battle Plan for Conquering Key Information Management Risks." Information Management: An ARMA International Publication, March-April 2012, pp. 35-39.

remote users. Access is much faster and possible from many locations at once. However, the GIS is only as good as the data used to populate it. PG&E created a series of 'pipeline survey sheets' in the early 1970s, summarizing known features and other information related to pipeline components. There were some errors in transcription from the original documents to the survey sheets. Considering the volume and the fact that many different people transcribed the data, this is not surprising. We have no specific data on the quality assurance or quality control processes used at the time, but we can assume that reasonable precautions were taken to capture the information correctly.[67] Yet errors were undoubtedly made. Potentially compounding those errors, PG&E used these survey sheets to populate the GIS in its initial deployment rather than return to the source documents. This was a reasonable approach given that staff had relied on those surveys in their hardcopy form for nearly two decades at that point. There was no reason to suspect that widespread errors existed. Yet, errors were made in the original surveys and those errors were replicated in the GIS, as NTSB found in its investigation of the accident.[68] As you will see in *Section V.D*, PG&E has corrected this error in approach in its plan for the future state of records and information management at PG&E.

Other similar implementation and operational records management issues occurred during the latter half of the 20th century as PG&E handled daily operations and faced financial and competitive pressures, along with other companies. As offices moved and the company underwent a series of reorganizations, the files moved. However, moving the files was usually secondary to moving an office, consolidating or dividing staff to fill roles in a new organization. It is inevitable that some files were lost or damaged during these activities. For most organizations, the files are not at the top of the priority list

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67 PG&E Response to Legal Division Data Request 23, Question 1.

68 National Transportation Safety Board Accident Report NTSB/PAR-1101, PB2011-91650, *Pipeline Accident Report: Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, San Bruno, California, September 9, 2010*, August 30, 2011.

when undertaking a move. Office space for staff is first, then technology, then files.[69] One recent trend is to decrease hardcopy filing space with each office move, to encourage staff to use electronic files instead. In most cases, the office move is driven by cost or space needs and managing the information during such a move is by necessity secondary. The general exception to this rule is centralized records centers or libraries. PG&E's central records centers were handled differently in office moves as the Bayshore facility was expanded over time and use of other central locations discontinued. Again, this is not ideal and some records were at risk during these moves, and some were most likely lost, but PG&E is no different from any other organization in this aspect of managing its records.

In late 2011, PG&E commissioned PriceWaterhouseCoopers (PwC) to conduct an assessment of the current state of records management and recordkeeping practices in the Gas Transmission organization.

> "The primary objective of the Records and Information Management (RIM) assessment is to improve the safety of PG&E's gas transmission and distribution system and its operations via assessing the current RIM landscape for Gas Operations and identifying actions for improving gas records and information management practices. The RIM assessment focus is to identify current gas records and information management challenges as compared to leading RIM practices, and address actionable ways to improve the RIM program maturity of Gas Operations."**70**

Dr. Duller and Ms. North referred to draft and preliminary findings reported by on January 18, 2012. In particular, they point to a summary of draft and preliminary findings related to interviews with the Gas

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69 Based on my experience supporting office moves and reorganizations in the public sector (e.g., U.S. Environmental Protection Agency, U.S. Army, U.S. Department of Homeland Security) and private sector over the past 25 years.

70 PriceWaterhouseCoopers, Gas Operations Records and Information Management Assessment, March 31, 2012.

Mapping organization;[71] however, they mischaracterize these findings as "[a] summary of PwC's key records management findings relating to the Gas Transmission Division from their draft report dated January 18, 2012."[72] These findings do not appear in the final PwC report dated March 31, 2012. In reviewing this findings document, which was described as both "draft and preliminary"[73] when PG&E provided it to CPSD, what stands out is that the discussions with the gas mapping staff were not strictly related to records management but included comments on the gas organization, gas leadership, recent organizational changes, resource challenges in all areas of the business, etc. The findings themselves are not in dispute, but the relevance of these draft and preliminary findings to PwC's overall assessment of the Gas Operations organization's records and information management practices is questionable as the organization and content of the final report do not reflect this information. It seems likely that this document was meant to be only and exactly what it said it was –

> "Summary of Information Management Key Themes Gas Mapping Organization (draft and preliminary (as of 1/18/12)). This is a draft and preliminary document that has not completed PwC's normal review cycle which would include a more thorough review and validation of the information, and the ability to review this document against other information to be collected and deliverables to be created for the engagement. This draft document summarizes information and themes emerging from the gas mapping organization as of January 18, 2012. The document is subject to further change as PwC continues its work."

Depending on these findings to conclude that the PwC report "not only substantiates many of the findings of the CPSD investigation […],

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71 Duller/North Report at 8-115 through 8-118.

72 Duller/North Report at 5-24.

73 PG&E's Supplemental Response to Legal Division Data Request 25, Question 2.

but also provides a damning indictment of the current state of information and records management within the PG&E Gas Transmission Division"[74] weakens Dr. Duller's and Ms. North's overall argument relating to the history of records management at PG&E.

The final PwC report presents high-level findings of the current state of records and information management in the Gas Operations organization. The report also provides 59 individual recommendations. Many of these recommendations are useful individually and are addressed in PG&E's future plan. The report represents a snapshot in time and indicates that PG&E is serious about understanding its records management environment, requirements and shortcomings. The recommendations are at varying levels of detail and do not represent a comprehensive strategy on their own, nor are they sufficiently detailed to comprise an implementation plan that can be followed as-is. However, they are a good start, and, when combined with a comprehensive enterprise-wide approach to records management, can help guide PG&E's path to its desired future state.

The operating environment for pipeline companies continues to change, as technology evolves and its use continues to grow, as the population grows, and as the infrastructure continues to change. Recordkeeping methods must also change to meet these new requirements. Dr. Duller and Ms. North failed to acknowledge that PG&E's records management program changed over time, in response to changes in the regulatory, technological and business environment.

2. PG&E's Retention Policies Met Applicable Regulatory Recordkeeping Requirements

Dr. Duller and Ms. North allege a number of instances where PG&E's central records retention schedules call for retention periods that are shorter than those required by other legal authorities.[75] I found several issues with these allegations.

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74 Duller/North Report at 5-24.

75 Duller/North Supplement.

a. ASME Standard B31.8

First, Dr. Duller and Ms. North repeatedly refer to American Society of Mechanical Engineers (ASME) Standard B31.8. However, ASME does not carry the weight of law. As an industry organization, ASME offers guidance and best practices for engineering. When creating a records retention schedule, records managers generally look first at legal requirements – laws and regulations that govern the operations of an organization. Capturing these requirements involves looking at Federal, State and Local regulatory bodies ranging from the Internal Revenue Service to the Environmental Protection Agency to the California Public Utility Commission, with many other organizations possibly having some regulations that may apply (e.g., a local planning board or tax authority). Reconciling these many regulatory authorities is as much an art as it is a science. However, the legal requirements set the baseline for retention.

Records managers then look at operational needs. Typically, the staff and managers who are responsible for doing the work – in this case, the engineers responsible for constructing and maintaining the pipelines – are the best source for operational requirements. During this phase of records retention schedule development, best practices such as those offered by ASME B31.8 could be useful. However, they do not rise to the same level as law. Therefore, "violating" an ASME standard does not constitute a broken law. From 1961 to 1970, CPUC adopted many of the ASME B31.8 requirements in its GO 112. During this time, the ASME requirements could be said to be "required," however, it is the fact of their adoption by CPUC that conveys this authority to the ASME standard, not the existence of the standard itself.

b. Regulators Have Not Always Been Prescriptive or Consistent in Stating Recordkeeping Requirements

In 1967, William L. Rofes writes in the inaugural issue of Records Management Quarterly that "the general types of appraisal factors to be considered – administrative, financial, operational, audit, legal and historical…are common to all types of appraisal work" however,

"[i]ndustry has a problem in reaching a records appraisal decision" because "government requirements are established but:

(1) Do not define the record or group which satisfies the requirement, and

(2) Do not define the time period of the government's interest."[76]

PG&E faced similar issues with CPUC's requirements as well as with the various Federal agencies involved over time: Federal Power Commission, Federal Energy Regulatory Commission and the Department of Transportation. In sifting through these various regulatory requirements, as well as industry best practices and standards such as ASME B31.8, one must make judgments based on balancing the potentially conflicting requirements of meeting all legal requirements, supporting all operational needs and incorporating those best practices that make the most sense. PG&E determined that a distributed approach to identifying and implementing records retention requirements best supported the distributed nature of their organization. The department supervisors, engineers and staff who created and used the information had the responsibility to make sure it was there when they needed it.

In the 1970s, FPC changed some of its requirements relating to records retention[77] and CPUC adopted those changes, as it had previously done[78] with earlier FPC Orders relating to records retention.[79] However, in this case, the Commission modified some of the FPC's newly modified requirements, believing that longer retention was required. In a letter dated June 16, 1975, PG&E requested that the Commission review Resolution No. FA-554 and provide "further guidance."[80] In response to this request, the Commission undertook a

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76 Rofes, William L., "Appraising Records with Joint Federal-Industry Interests," Records Management Quarterly, Volume 1, Number 1, January 1967, pp 22-26.

77 Federal Power Commission Order No. 450.

78 CPUC Resolution No. FA-554, October 16, 1974.

79 Specifically, CPUC Resolution No. 157, dated July 22, 1952, and Resolution No. 216, dated January 16, 1962.

80 Letter from Malcolm H. Furbush, PG&E, to William R. Johnson, Secretary Public Utilities Commission, dated June 16, 1975.

review[81] and suggested a revision to the proposed retention guidance in Resolution No. FA-554, resulting in Resolution No. FA-570,[82] which provided significantly more detailed retention instructions for the preservation of gas and electric records. Through interactions like this one, PG&E continued to develop its records management program, striving to understand and meet its regulatory recordkeeping requirements.

c. Retention Schedules Are Not the Only Source of Retention Policy Guidance

Based on Appendix 9 of their report,[83] Dr. Duller and Ms. North looked only to the centrally released records retention schedules (those issued by the Corporate Secretary) to find the retention periods. In light of the fact that they realized that the divisions were responsible for managing their records in accordance with the 210.4 series of standard practices[84] and that the division heads had responsibility for creating and managing records in support of ongoing operations, it is naive to assume that the central retention schedules are in fact a complete source for records retention information. It is more likely that the engineers and managers in the divisions who were responsible for safely operating the pipelines on a daily basis referred instead to the standard practice documents which governed all of their operations.

Standard Practice 210.4-3,[85] Retention of Records – General Office Departments, dated March 1, 1959, outlines a number of key foundational elements in PG&E's records retention development. First, the policy section of the document states that the purpose of this standard practice is:

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81 Internal Memorandum, from Public Utilities Commission – San Francisco, B. A. Davis, General Division Engineer, to H. H. Webster, Finance and Accounts Division, dated July 12, 1976.

82 CPUC Resolution No. FA-570, August 3, 1976.

83 Duller/North Report at 9-158 through 9-169.

84 Duller/North Report at p 6-32.

85 P2-192, SP 210.4-3, Retention of Records – General Office Departments, March 1, 1959.

1. To destroy all General Office records which have outlived their usefulness to the Company from a legal, operating, and administrative standpoint.
2. To provide a comprehensive guide to the periodic destruction of obsolete General Office records.**86**

This is practically a textbook definition of the purpose of a records retention schedule. Considered by many to be the "founding father" of records management in the U.S., Emmet Leahy says "[The retention schedule] is the official timetable governing the retirement and destruction of all company records."[87] Information and Records Management, a textbook used in many records and archives management classes in the U.S., revised repeatedly over the past four decades, and used as the basis for the development of many of the questions in the certification examinations for the Certified Records Manager designation of the Institute of Certified Records Managers, states:

> "The overall objectives of the retention policy, the basis for the retention schedule, are:
>
> - To assure the protection of vital records.
> - To retain records of value and historical interest.
> - To restrict filing equipment and space to housing active records.
> - To release computer magnetic tapes for reuse as quickly as possible.
> - To destroy records which have served their usefulness."**88**

Dr. Duller and Ms. North state: "First, guidance on records management was focused on storage, archiving and document

86 P2-192, SP 210.4-3, Retention of Records – General Office Departments, March 1, 1959.

87 Leahy, Emmet J. and Cameron, Christopher A., Modern Records Management, McGraw-Hill Book Company, New York, 1965, p. 55.

88 Maedke, Wilmer O.; Robek, Mary F.; and Brown, Gerald, F., Information and Records Management, Glencoe Press, Beverly Hills, 1974, p. 69.

destruction. Second, in order to 'save money' guidance on records management was limited to removal of 'inactive' records with legal or business retention requirements to the Record Center."[89] These statements are not only true but completely appropriate as that is the purpose of a records retention program. PG&E's program focused appropriately on disposing of those records that were no longer needed for legal or operational purposes. Saving money is an appropriate pursuit of any business, particularly one which is supported by the public in the form of rate payers. However, it is not true, as Dr. Duller and Ms. North imply, that PG&E focused on saving money to the detriment of their records management operations.

The second foundational element that can be found in this early statement of PG&E's approach to records management is under a section heading titled 'RECORDS RETENTION SCHEDULES.'

> 3. This Standard Practice provides for the establishment of Records Retention Schedules covering records in the General Office. These schedules will serve as guides in the periodic disposition of obsolete records. *Each department will issue its own retention schedule*.**[90] [91]**

From the start, PG&E clearly placed the responsibility for managing records with the parts of the business which created and used them: the General Office for those records related to corporate functions shared by all and the departments for those records that supported individual functions, such as Gas Operations.

Finally, under the section called "ORIGINAL (OR RECORD) COPIES NOT LISTED," PG&E provides for the retention or destruction of records that may not be captured on an official records retention schedule. In so providing, note that PG&E refers to the FPC as the governing authority for their operations and recordkeeping requirements.

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89 Duller/North Report at 6-33.

90 Emphasis added.

91 P2-192, SP 210.4-3, Retention of Records – General Office Departments, March 1, 1959.

This is consistent with PG&E's and CPUC's stance at the time, as the Department of Transportation had not yet been established.

> 9. Original (or record) copies not specifically listed in the Retention Schedules may be destroyed in accordance with the retention periods as set forth in the current Federal Power Commission's blue book entitled "Regulations to Govern the Preservation of Records of Public Utilities and Licensees," at Department Head's discretion.[92]

As a companion to SP 210.4-3, PG&E also published Standard Practice 210.4-4: Retention of Records – Divisions.[93] This Standard Practice is very similar to Standard Practice 210.4-4, but it had as an attachment a specific records retention schedule, as opposed to a sample on which the Departments were to base their own records retention schedule. We do not have a copy of the attached 1959 records retention schedule, but the language of Standard Practice 210.4-4 indicates that the attached records retention schedule is based on and refers specifically to FPC recordkeeping requirements. Standard Practice 210.4-3 and Standard Practice 210.4-4 each refer to the record holders for the records covered by the other Standard Practice . Specifically, they direct staff that copies of records created by one organization (e.g., General Office or a Department) but held by the other (e.g., a Division) are not covered by the Standard Practice for that organization. Rather, each Standard Practice directs its users to the appropriate Department or Division head with questions about records retention and disposal. Standard Practice 210.4-4 also indicates that periodic records management audits should be conducted by the Division Records Management Advisor. Later in the evolution of Standard Practice 210.4-4, the responsibility for determining retentions

92 P2-192, Standard Practice 210.4-3, Retention of Records – General Office Departments, March 1, 1959.

93 P2-193, Standard Practice 210.4-4, Retention of Records – Divisions, August 1, 1959.

in the Regions and Divisions is delegated to the Regional Managers, as well.[94]

In carrying out these recordkeeping instructions, PG&E's Department and Division heads may have created separate retention schedules. However, as discussed in section E.2, we know they also created detailed standard practices outlining their operational procedures and incorporated recordkeeping requirements directly into those standard practices. For example, the following standard practices[95] direct staff to maintain records for the life of facility in accordance with CPUC requirements:

94 P2-205: SP 210.4-4: Retaining and Destroying Records – Operating Regions, June 1, 1986.

95 P3-10041, containing copies of SP 460.2-1, SP 460.21-4 and SP 460.2-2.

Standard Practice Number/Title[96]	*Effective date*	PURPOSE AND POLICY	RESPONSIBILITY	PERFORMANCE OF OTHER ROUTINE WORK (RECORDKEEPING)
SP 460.2-1	2/1/68			
PATROLLING: PIPELINES AND MAINS		1. To establish a uniform procedure for periodic patrolling of Company gas transmission pipelines and selected distribution mains for the purpose of observing conditions on and adjacent to the right of way or route of the main, such as indications of leakage, construction activity, and any other factors that could be expected to affect the operation and safety of the lines or other Company facilities along the lines.	5. The responsibility for performance of periodic patrolling shall rest with supervisors in the divisions and Pipe Line Operations Department, who direct the maintenance and operation of gas pipelines, mains, and appurtenances. Performance includes: setting specific scope and special considerations, assignment of frequency of patrolling, reviewing, and maintaining patrol records, and initiating action to correct conditions found during patrolling.	16. A copy of each report shall be retained for the **life of each numbered gas transmission pipeline** and for a minimum of three years for selected distribution mains.

96 Exhibit P3-10041 contains copies of all three of these standard practice documents.

Standard Practice Number/Title[96]	*Effective date*	PURPOSE AND POLICY	RESPONSIBILITY	PERFORMANCE OF OTHER ROUTINE WORK (RECORDKEEPING)
		2. The route of each gas transmission pipeline or selected distribution main shall be patrolled periodically in accordance with General Order 112-B of the California Public Utilities Commission. This is in keeping with the general policy of conducting inspections as often as judged to be necessary to assure safe and economical operation.		

Standard Practice Number/Title[97]	***Effective date***	**PURPOSE AND POLICY**	**RESPONSIBILITY**	**PERFORMANCE OF OTHER ROUTINE WORK (RECORDKEEPING)**
Sp 460.21-4	3/1/68 (*replacing 4/1/66 version*)			
GAS LEAKAGE, ROUTINE INSPECTION FOR		1. To establish a uniform requirement for the performance of gas leakage surveys of company mains, pipelines, buried station piping, and services for the purpose of detecting and reporting leakage and to establish an adequate method for recording such surveys. 2. Routine leakage surveys shall be conducted at regular intervals throughout the gas system in order to maintain a safe and efficient operation. Surveys shall **comply with CPUC regulations**.	3. The responsibility for the performance of routine inspection for gas leakage shall rest with the supervisor in the division and Pipe Line Operations Department, who directs the maintenance and operation of the facilities.	11. Records d. Record Retention: (1) Records of leaks discovered, repairs made, and routine leak survey tests shall be retained as follows: (a) For numbered gas lines and secondary trunk mains, the records shall be kept on file as long as that section of main involved remains in service, plus 6 years. (b) For gas lines requiring annual surveys, the records shall be kept at least six years. (c) For gas lines not having an annual survey, the records shall be kept for 11 years.

97 Exhibit P3-10041 contains copies of all three of these standard practice documents.

Standard Practice Number/Title[97]	*Effective date*	PURPOSE AND POLICY	RESPONSIBILITY	PERFORMANCE OF OTHER ROUTINE WORK (RECORDKEEPING)
SP 460.2-2	4/1/68			
PHYSICAL INSPECTION: PIPELINES, MAINS, AND SERVICES		1. To establish a uniform procedure for periodic patrolling of Company gas transmission pipelines and selected distribution mains for the purpose of observing conditions on and adjacent to the right of way or route of the main, such as indications of leakage, construction activity, and any other factors that could be expected to affect the operation and safety of the lines or other Company facilities along the lines. 2. The route of each gas transmission pipeline or selected distribution main	4. The responsibility for performance of inspections of pipelines, mains, and services shall rest with the supervisors in the Divisions and Pipe Line Operations Department, who direct the maintenance and operation of these facilities. Performance includes assignment of scope, issuance of special instructions, training in points to observe, scheduling special surveys, reviewing and maintaining inspection records, and initiating action to correct conditions requiring immediate attention. 5. Responsibility for inspection of these gas facilities and the preparation of necessary records of inspection shall also be shared by the General Construction Department Supervisors in the performance of assigned work within the Company gas system. All records of inspections so generated shall	RECORDS: 13. A record of each inspection shall be filed in the Division or Pipe Line Operations Department for the **life of the facility**. 14. When a section of pipe is replaced or reconditioned, the record for that section shall be attached to the Division or department copy of the retirement order or authorization for the work.

Standard Practice Number/Title[97]	*Effective date*	PURPOSE AND POLICY	RESPONSIBILITY	PERFORMANCE OF OTHER ROUTINE WORK (RECORDKEEPING)
		shall be patrolled periodically in accordance with General Order 112-B of the California Public Utilities Commission. This is in keeping with the general policy of conducting inspections as often as judged to be necessary to assure safe and economical operation.	be turned over to the Division or Pipe Line Operations Department.	
Note: ***Emphasis*** *added to highlight references to CPUC authority and mandated records retention.*				

Figure 16: Retention Policies Embedded in Key Standard Practice Documents

Over time, individual standard practices were revised; they changed names. They referred to each other and were referenced by each other as well as by the central retention schedules. However, it is possible to trace retention policies for the affected records – those records that were created by or needed to complete the work associated with the standard practice – over time.

As shown in the following graphic, which relates to alleged Violation No. 1, PG&E published to its staff several standard practice documents outlining the way in which certain work (design, construction, maintenance) should be performed. These standard practices also included records retention information, calling for life of facility retention, as purported by Dr. Duller and Ms. North to be the appropriate retention. The standard practice listed at the top of the graphic is the governing standard practice based on its scope as reflected in its title and the description of the work to be performed under this Standard Practice. The other standard practices listed in the effective dates section of the graphic also support this retention policy.

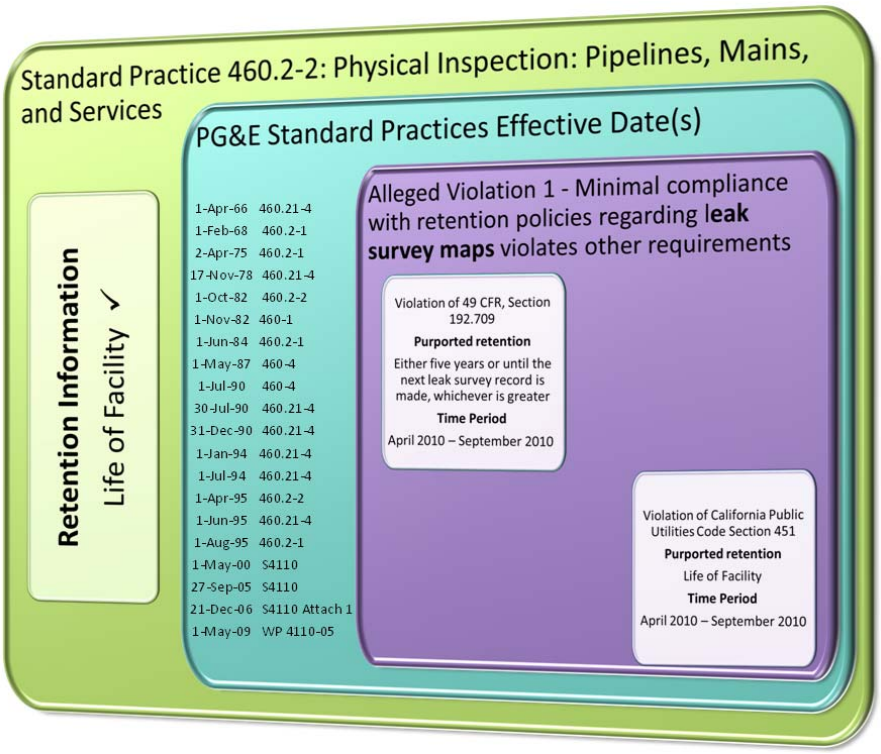

Figure 17: Alleged Violation No. 1

Appendix D depicts analogous information for all of the specific allegations relating to the incompleteness or inadequacy of PG&E's retention policies over time. In each case, the standard practice listed at the top of the graphic is the governing one. Appendix D also contains a chart of the history of the effective dates of the standard practices, showing a history of meeting records retention requirements over time. The table below shows the specific retention PG&E directed its employees to follow for each of the record types identified in the Duller/North Report. As shown, these standard practices called for life of facility retention for each of the record types in question.

Duller/North Report: Alleged Records Retention Violation	**Record Type in Question**	**Governing Standard Practice Number**	**SP Title**	**SP Retention**
B.1	Leak Survey Maps	SP 460.2-2 (& subsequent)	Pipeline Inspections: Pipelines, Mains and Services	Life of Facility
B.2	Line Patrol Reports	SP 460.21-4 (& subsequent)	Routine Inspection for Gas Leakage	Life of Facility
B.3	Line Inspection Reports	SP 460.2-2 (& subsequent)	Pipeline Inspections: Pipelines, Mains and Services	Life of Facility
B.4	Gas High Pressure Test Records	SP 1604 (& subsequent)	Design and Test Requirements for Gas Piping Systems	Life of Facility
B.5	Transmission Line Inspections	SP 460.2-2 (& subsequent)	Pipeline Inspections: Pipelines, Mains and Services	Life of Facility

The extensive library of standard practices represents a comprehensive and complex set of detailed instructions for the Gas Transmission managers, engineers and staff. The History File Requirements Manual[98] is a good example of the way PG&E kept its staff informed of changes to regulatory requirements, in this case changes to recordkeeping requirements necessitated by the publication of GO 112-E, and collected for easy reference instructions for creating, maintaining and preserving critical records along with instructions for carrying out daily work functions and processes. This manual is more than 600 pages long. It begins with a four-page summary of the changes between GO-112D and GO-112E. The remainder of the manual then contains individual standard practices, forms, etc. On the first page of the introduction, the purpose of the manual is stated as follows.

> "This reference manual details record keeping requirements to satisfy the CPUC G.O. 112-E, PG&E company Standard Practices, and related orders/instructions. These Standards and Orders require documentation to be maintained for the life of facilities or for extended periods and are subject to audit. District personnel should become familiar with the contents of this manual and begin using it immediately as a record keeping reference aid.
>
> This manual is not intended to supersede any other standards or documents, it is intended as a useful guide book to summarize record keeping requirements for Gas System Maintenance personnel. The purpose is to help insure that records are kept in a standard manner, and in accordance with the most current orders, instructions and interpretations.
>
> Questions or suggestions related to the contents of this manual, or related to the interpretation of standards should be referred to the Director of Standards in the Gas Systems Technical Services."

Figure 18: HFR Introduction[99]

98 P2-1477, History File Requirements Manual, updated February 14, 1996.

99 P2-1477, History File Requirements Manual, updated February 14, 1996.

The relationships among these standard practices and the centrally compiled records retention schedules is complex. Appendix E contains a table which presents the standard practices and/or retention schedules in effect at the time of each alleged violation. Taken in total, these documents provide records retention instructions that meet the retention requirements purported by Dr. Duller and Ms. North. The practice of embedding recordkeeping requirements in standard operating procedures or department-specific polices is not at all unusual in the utility industry or in other industries. Frequently, recordkeeping requirements are embedded in other policy and process documents published by other parts of the organization. When reviewing and revising records management policies for an organization, it is my practice, based on my experience finding records retention policies embedded in other documents, to develop a policy framework which outlines all of the necessary records management related policies and assesses whether and where those policies already exist in the organization. The policy framework graphically depicts potential overlaps, conflicts and gaps and guides the user in determining where and how to modify, create or update the organization's records management-related policies. Such a framework developed for PG&E would show the relationships among the standard practices produced by the Divisions and the retention schedules produced by the Central Office as well as depicting other related policies such as information security or classification, email rolloff and backup frequency.

As shown here, PG&E did provide direction to its employees to create, maintain and preserve those records that were needed to operate the gas transmission system. The retention instructions contained in the standard practice documents refer to the CPUC requirements and/or to federal regulations and call for retentions that meet the requirements outlined by Dr. Duller and Ms. North in their report. CPSD's allegations refer only to PG&E's centrally issued records retention schedules. My review of the standard practices provided by PG&E to the CPUC in its filings and responses to data requests clearly shows that PG&E consistently embedded records

retention information into its work-specific standard practices (i.e., the SP 460 series). Dr. Duller and Ms. North acknowledge the distributed nature of PG&E's records management program and the existence of the extensive standard practice library. They state that authority was delegated to senior managers in the Departments and Divisions. Yet they fail to consider the standard practices when searching for records retention information, depending solely on the centrally issued records retention schedules instead. This incomplete analysis does not provide sufficient support to prove the alleged violations.

3. PG&E's Pipeline Records Integration Program, Combined with a Comprehensive, Enterprise-wide Records Management Program, Provides a Strong Foundation for a Robust Future State

Since the incident at San Bruno, PG&E has been engaged in a multi-phased response to improve the overall state of its records management program. PG&E describes this response in its August 26, 2011, filing before the CPUC in response to *Order Instituting Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Ratemaking Mechanisms (R.11-02-019)*.[100]

"Pacific Gas and Electric Company ("PG&E") files this Natural Gas Transmission Pipeline Replacement or Testing Implementation Plan ("Pipeline Safety Enhancement Plan" or "Implementation Plan") in compliance with Decision 11-06-017, issued June 9, 2011 by the California Public Utilities Commission ("CPUC" or "Commission") with the goal of enhancing safety and improving operations. Ultimately, when the Pipeline Safety Enhancement Plan is completed, PG&E will have comprehensively assessed all 5,786 miles of its natural gas transmission pipelines. This Pipeline Safety Enhancement Plan represents a clear break from the way California and its utilities approached pipeline safety in the past, and the way it will be approached in the future. [...] Based on this order, PG&E has undertaken a massive and unprecedented program to pressure test or

100 PG&E's Natural Gas Transmission Pipeline Replacement or Testing Implementation Plan, August 26, 2011.

replace every pipeline without complete pressure test records and validate the MAOP of older pipelines through a rigorous, records-based analysis."[101]

Integral to this Pipeline Safety Enhancement Plan (PSEP) is the Pipeline Records Integration Program. This Pipeline Records Integration Program consists of two key records-related projects started in 2011: MAOP Validation and Gas Transmission Asset Management (GTAM).[102] MAOP Validation has as its primary goal the use of source records "to validate and re-calculate the MAOP for PG&E's gas transmission pipelines and pipeline system components."[103] As a by-product of the need to identify and depend on these records, however, the condition and treatment of the records themselves will also be improved. Specifically, "the inventory will include electronic links to source information about each pipeline and component in order to enhance transparency and provide traceability to the source used to derive critical data."[104] The original paper records are barcoded and stored in the Emeryville warehouse while the electronic versions are currently stored in both ECTS and Documentum and made available to appropriate users through a portal. In the future, the electronic images of the source documents will be available to users directly from either the enhanced GIS or SAP, linking all three primary data sources together.

This Pipeline Records Integration Program represents the bulk of the records management related work currently underway at PG&E, and, in particular, in the Gas Operations organization. At the same time, the Gas Transmission organization has been working steadily for the past year to improve its own recordkeeping and data quality in direct response to the issues discovered by NTSB and the recommendations they, PHMSA and CPUC made following the accident investigation. Once the program, the

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101 PG&E's Natural Gas Transmission Pipeline Replacement or Testing Implementation Plan, August 26, 2011.

102 PG&E PSEP Filing, Chapter 5: Pipeline Records Integration Program, August 26, 2011.

103 PG&E PSEP Filing, Chapter 5: Pipeline Records Integration Program, August 26, 2011.

104 PG&E PSEP Filing, Chapter 5: Pipeline Records Integration Program, August 26, 2011.

new processes and the new technology have been established for Gas Transmission, PG&E intends to extend the program to Gas Distribution.

Before they could begin to build their vision of the future, PG&E had to respond to CPUC's urgent deadlines to provide validated Maximum Allowable Operating Pressures for many miles of pipeline. Their first step was the GIS Verification project. This project focused on the existing GIS system, in which NTSB identified data errors. The approach was to randomly sample the data and then seek out the source documents and confirm the material specifications. This project quickly morphed into Phase 1 of the MAOP Validation project. At the time, PG&E was operating under an agreement with the CPUC and had to provide validated pressures for more than 700 miles of pipeline in stages during June, July and August 2011.[105] The Company also had to complete hydrostatic testing for approximately 150 miles of pipeline within nine months.[106]

During this initial phase (January through March 15, 2011), PG&E began a system-wide search for Strength Test Pressure Reports (STPRs) located anywhere in the organization. The search included documents containing any information relating to gas transmission assets. They sent search teams to every possible storage location and "scanned in place" so that the documents continued to be available to field personnel. They quickly realized that this approach was both slower and more expensive and made the decision to consolidate the records to a central location for sorting and scanning. They were driven primarily by the pending regulatory deadlines and focused on efficient identification of the information so that it could be scanned and made available as quickly as possible. This decision to centralize the indexing and scanning operations led to Phase 2, where these activities were moved to the Emeryville location, where they still take place today.[107] At this point, the MAOP Validation activity took precedence over records management priorities per se, but the end result was a more

105 Stipulation RE: Order to Show Cause, March 24, 2011, Attachment A.

106 Stipulation RE: Order to Show Cause, March 24, 2011, Attachment A; Interviews with Brian Daubin, Valda Sanders and Rajpreet Basuta, May 15, 2012, and with Sumeet Singh, May 17, 2012.

107 Interview with Brian Daubin, Valda Sanders and Rajpreet Basuta, May 15, 2012.

comprehensive, centralized collection of gas related records than had existed in the previous 20 or more years.[108]

Several different existing business systems were pulled into action to accommodate the urgent pace of this scanning and indexing activity. Specifically, ECTS (based on Assurix software) has the ability to hold images and was the original repository of the scanned documents. To date, approximately 3.2 million pages have been scanned as single-page TIFF images.[109] Staff are able to access the images remotely, increasing efficiency and use of these valuable documents. However, ECTS was never seen as the final repository for the images and PG&E recognized that this was not its intended use, and it was not a good long-term fit.

Documentum has been selected as PG&E's enterprise content management and enterprise records management platform. Currently in pilot, the ECTS repository of MAOP Validation documents has been mirrored in Documentum.[110] Eventually, Documentum will be the official repository not only of these MAOP Validation documents but of all pipeline-related documentation, linked to other key data stored in the GIS and enterprise resource planning system (SAP).[111] This integration is described in greater detail later in this report.

In addition, two tracking systems were used by the MAOP Validation staff: Filemaker to track folders, bar codes, and box/job folder location in the warehouse (an onsite storage room in Emeryville containing approximately 5000 boxes of collected documents that are somewhere in the scanning process (most are complete).[112] Finally, the team is using Project Tracker

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108 NTSB Telephone interview, June 27, 2011, with Larry Medina indicates that centralized management of pipeline files was dispersed after 1993 based on pressure limits of pipes (i.e., pipes operating at >60psi) became the responsibility of the Distribution group; also around this time, as office moves and other reorganizations took place, records were transferred to new offices or to the records center or were inadvertently lost in the process, PG&E June 20, 2011, filing, Chapter 2A.

109 Phase 3 includes linking these single page TIFFs so that documents are physically as well as logically together.

110 Interview with Charu Jain, Leslie Banach, Christopher Vana, May 16, 2012.

111 Interviews with Steve Whelan, May 16, 2012, and Sumeet Singh, May 17, 2012.

112 Interview with Brian Daubin, Valda Sanders and Rajpreet Basuta on May 15, 2012.

to track chain of custody as the boxes move from their original locations through the indexing and scanning processes to the warehouse for storage. Again, there is recognition on the part of PG&E and this team that these tools may not be ideal for the task, but they represent a solid interim approach to managing the influx of so many thousands of boxes and documents in a short time. From a records management perspective, this project was not ideal. However, the engineering and process rigor applied to collecting, reviewing, scanning and indexing these documents provides an acceptable result.

During Phase 1 of the MAOP Validation project, more than 200,000 cubic feet of documents were collected and sent to the Cow Palace for a triage effort carried out in shifts over the course of a few days. The goals of the triage were to separate boxes containing any records related to gas (the "Gas" boxes) from those that contained no potentially relevant records. The teams attempted to track chain of custody and note where the boxes came from and where they went. From a records management perspective, the provenance of some of the information gathered in this heightened state of urgency may be somewhat suspect. We cannot know for sure. However, PG&E met its primary goals of locating any potentially relevant historic documents from across the entire company and tracked the origin of the files, their movement through the Phase 1 process and their current location in Iron Mountain or Emeryville.

The teams carried out two separate processes. "Gas" boxes went through a folder-by-folder review to determine if there were any STPRs, the focus of Phase 1. During this phase, the team's hypothesis that those offices where gas transmission operations were carried out would be the most likely sources of this information proved to be correct. Walnut Creek/Wiget Road and the Division offices were the richer source of gas documents of all of the locations searched. However, to be thorough, all of the documents contained in the Bayshore records facility (over 100,000 boxes)[113] were also reviewed as well as boxes from other offices that were

113 Interviews with Joe McClain and Steve Pucinelli and with Dave Kelly, May 15, 2012.

thought to possibly contain relevant documents.[114] The end result of Phase 1 was validated MAOPs for those pipelines where STPRs had been located. This result did not meet all of CPUC's needs, and so PG&E moved on to Phase 2, wherein they were working under the Compliance Agreement to provide validated MAOP for certain sets of pipeline in accordance with a series of non-negotiable deadlines.

Phase 2 of the MAOP Validation involved identifying all of the pipeline assets and creating Pipeline Features Lists (PFLs) that trace all the components from design through construction to operations and maintenance. The PFLs will be updated unto the new GIS so that users will be able to view the components on a map, click through to the PFL and then access the source document in the document repository, all through a single portal.

The project team took the time to put in place a series of documented process flows, detailed training and quality assurance reviews and escalation processes and other safeguards to ensure that the historic documents were consistently identified and indexed in accordance with the standards developed for the project. Establishing this discipline at the start of Phase 2 leads to greater confidence in the quality and reliability of the data that forms the backbone of the PFLs, and, ultimately, the validated MAOPs. The documentation created by the team, the regularly scheduled training and the routine quality assurance reviews[115] demonstrate PG&E's

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114 Interview with Sumeet Singh, May 17, 2012.

115 Documentation related to the MAOP Validation project includes:

1) Document Coding Example Guide, Pacific Gas and Electric Company Gas Transmission Data and MAOP Validation Project, Revision 12 - 06/01/2011
2) Job Aid TD-MAOP-P-JA_20 for Guidance Document TD-MAOP-P-20 MAOP Validation Assign Document Types, Effective: 05/23/2011
3) Walnut Creek Retrieval team processes: 7/20/11
4) PG&E Academy, Data & MAOP Validation Retrieval Field Team Work, ENGP--0007, Ver. 1.1, undated
5) Retrieve Process 2.0A, Ver. 2.6, 11/2/11
6) MAOP Project - 120K File Review - Boxes/Folders, 03/03/11
7) Gas Key Words, 28 March 2012
8) Assign Document Types process, Version 1.0, 06/01/11
9) Celerity Doc Typing Process, undated
10) Processes
    - Install Job Team 3.0, ver. 2.0, 8/9/11

commitment to creating a high quality, reliable data set to support future MAOP calculations and other safety-related decisions. This effort goes a long way towards meeting the letter and spirit of the "traceable, verifiable and complete" recordkeeping requirement. Phase 3 of the MAOP Validation project, which includes the full integration of the data sources, helps PG&E to answer three key integrity management questions:

1. Have all the assets been correctly and completely identified?
2. Is the placement of the asset known and correct?
3. What is the condition of the asset?

To answer the first question, the MAOP Validation team captured the job numbers and segment IDs from the old GIS in a snapshot taken on January 3, 2011, however, they validated that information from other sources and are capturing all of the asset information that goes into the PFL by returning to the source documents, not relying on any pipeline-specific data that was added to the old GIS system. The segment IDs are still valid; however, in partial response to question 2, above, PG&E is in the process of moving from the outdated mile point referencing system to the newer linear referencing system, which is becoming more widely accepted and is more accurate as it allows for the inevitable movement of pipeline in the ground over time. Finally, the third question will be answered in part through review, validation and confirmation of the pipeline components through the PFL process.[116]

- Plat walk Process Map, ver 2.4, 3/19/12
- Walnut Creek Retrieval 2.0A, ver 2.6, 11/2/11
- Field Retrieval J3A5, ver 2.7, 4/9/12
- Full Job Scan Retrieval 2.0, ver 1.2, 1/5/11
- PFL Build QC Process 4.0B, ver 2.3, 2/15/12
- PFL Build Process Map 4.0A, ver 1.9, 1/13/12
- Issue Resolution Analysis 5.0, ver 2.5, 5/7/12
- Research Team Retrieval Process 2.0C, ver 1.1, 2/15/12
- Emeryville Process J3A5, undated

116 Interviews with Steve Whelan, May 16,2012, and with Sumeet Singh, May 17, 2012.

Phase 3 of the MAOP Validation, currently underway, expands the scope of the original project to capture all gas assets, not just transmission pipelines and pipeline components. The focus of Phase 3 is on completing MAOP validation for Non-HCA (High Consequence Area) pipelines. The focus of the Mariner project is on the integration of three enterprise-level systems: SAP, GIS and Documentum to support the ongoing capture, integration and use of critical pipeline data. The Mariner project strategy has three key components.

Mariner Strategy
1) Collect data at the point of origin a. Mobile data collection b. Real-time data validation/correction c. Eliminate hand-offs, decrease opportunities to introduce data errors
2) Consolidate data in enterprise information systems a. Sources of truth with known data quality b. Accessible to all staff with appropriate access c. Different parts of the organization can use the same data in different ways (e.g., TIMP and Gas Operations)
3) Integrate three key information systems using linear referencing to tie everything together around the assets a. SAP retains the audit history for updating linear reference points over time b. Source documents are linked to each asset[117]

Figure 13: Mariner Strategy[118]

117 Interview with Steve Whelan, May 16, 2012.

118 Interviews with Charu Jain and Christopher Vana and with Steve Whelan, May 16, 2012.

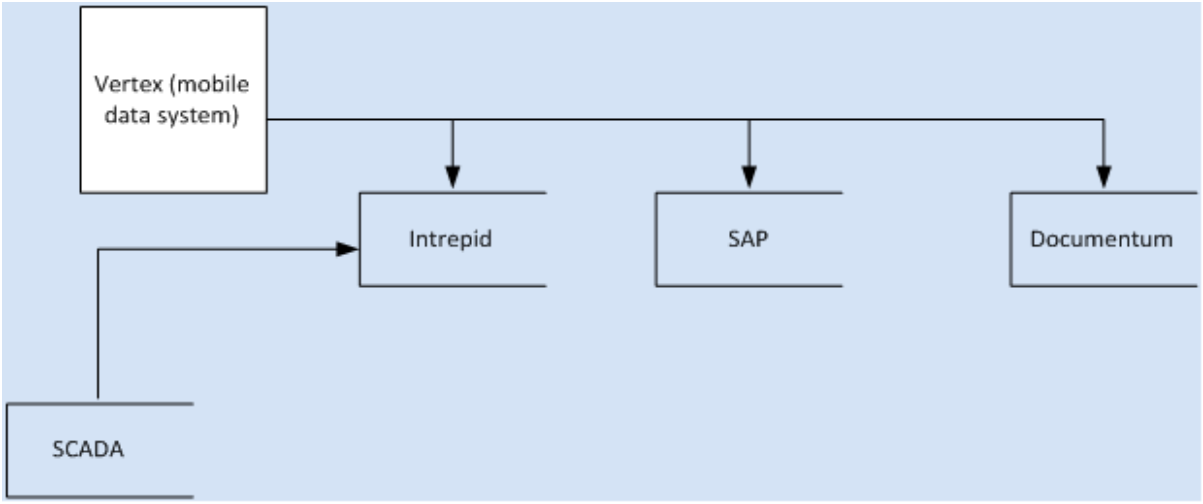

Figure 14: Mariner Conceptual Design[119]

As shown in the conceptual design above, eventually, the system will integrate with SCADA and capture the ongoing maintenance and operations data related to each asset, as well. The system, minus the SCADA interface, is currently in pilot for a few lines including one that has In Line Inspection (ILI) data, so that they can test that feature of Intrepid (the new GIS component of the system). The new GIS will be stood up next year.[120] The integrated information management platform envisioned by Mariner is a critical supporting component to the future Gas Asset Knowledge

119 Interview with Steve Whelan, May 16, 2012.

120 Interview with Steve Whelan, May 16, 2012.

Management environment,[121] pictured below.

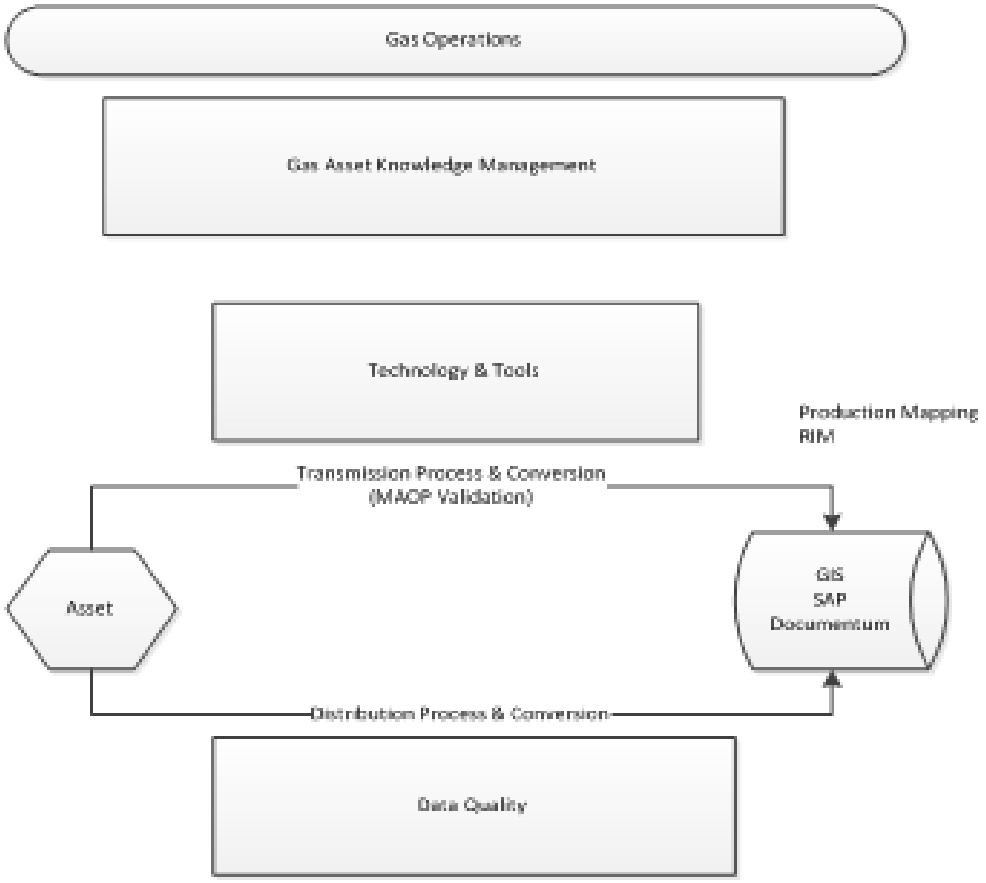

Figure 15: Gas Asset Knowledge Management Future Environment[122]

As shown in the diagram above, the vision for Gas Asset Knowledge Management goes beyond the mandated MAOP Validation for Transmission pipelines (6,750 miles).[123] [124] The next phase is to create the same level of data validation and data quality for the Distribution lines. For Distribution, however, since there are so many more miles of pipeline (42,000 – 43,000 miles)[125] and, therefore, so many more documents, they will not scan all the documents up front. Rather, they plan to create central records facility for

121 Interview with Sumeet Singh, May 17, 2012.

122 Interview with Sumeet Singh, May 17, 2012.

123 Interview with Sumeet Singh, May 17, 2012.

124 PG&E's definition is more conservative than DOT's; DOT classifies only 5,800 miles as Transmission.

125 Interview with Sumeet Singh, May 16, 2012.

Distribution records and scan on demand to build the Distribution online, integrated document collection over time. They will have the integrated GIS and SAP data. Timing for the next phase of Mariner process is to convert the Peninsula this year and fully deploy the system and associated processes next year.

As these individual systems are deployed and upgraded, and then integrated, Gas Operations and IT need to work closely with Legal and the newly emerging enterprise records management program to ensure that records retention and other recordkeeping functionality can be carried out on the record data contained in these systems. While pipeline assets have a long life, and most of the records must be maintained for the life of the facility, records related to pipes and components that are taken out of service will need to be destroyed. This pipeline system has already been in place more than 70 years. Envisioning all of the data that will be collected in another 70 or more years of operations, it is clear that there is a need to be able to dispose of records that are no longer needed. This is just as important as maintaining those records that must be maintained – and ensuring ongoing access. It is not the goal of records management to "keep everything forever" and that should not be PG&E's goal in developing its new, highly sophisticated information management environment.

While a significant amount of records-related activity has been occurring in the Gas Operations organization for the past 18 months, PG&E also recognizes the need to improve records management on an enterprise level. As such, PG&E established a Records Management Steering Committee co-chaired by the Corporate Information Officer (CIO) and the Senior Vice President and General Counsel, supported by the Director of Information Management Compliance and a Program Director from IT. The committee includes senior representatives (Vice Presidents or Directors) from each line of business as well as each back office function. Establishing such a steering committee is an industry-wide best practice. PG&E goes one step further, however, and for each steering committee member, a Working Team has also been identified. The Working Team members support the steering committee members in identifying or researching issues relevant to their business units, implementing and communicating with staff about new

records management programs and initiatives, and supporting the implementation of records management policies and tools. This level of human resource commitment is unusual and indicates a good understanding on PG&E's part of the challenges they face in establishing a culture where information is considered integral to doing a good job, not an afterthought that is someone else's problem to manage. This Steering Committee/Working Team approach also indicates that PG&E intends to continue its process-centric approach to records management as that approach best meets their needs, especially on a daily, operational level.

While the steering committee is essential to full enterprise-wise program implementation, the program needs a single point of authority and leadership. To address this need, PG&E recently hired a Director of Information Management Compliance. The Director has established four high level objectives[126] [127] for the program:

1. Create one central electronic location/placeholder for corporate records that will allow the right people at the right time to retrieve the record
2. Manage information in a way that meets regulatory compliance as well as the needs of the business
3. Design processes that demonstrate PG&E practices record-keeping in a legally defensible environment
4. Reassure users that they are not giving up control of their information and that they are contributing to PG&E's information management maturity

And associated long-term goals:[128]

1. Declare, store, manage and retrieve records in a uniform way across PG&E

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126 Interview with Leslie Banach, Director - Information Management Compliance, May 15, 2012.

127 PG&E Records Management Program Goals and Objectives, undated, provided during interview with Leslie Banach, Director of Information Management Compliance, May 15, 2012.

128 PG&E Records Management Program Goals and Objectives, undated, provided during interview with Leslie Banach, Director of Information Management Compliance, May 15, 2012.

2. Create processes to support new policy and standards' expectations
3. Design a program that identifies the official, authenticated record (final version proven to be unalterable)
4. Define a process for disposing of/deleting information that is auditable, legally defensible, and meets regulatory requirements.

During my discussion with the Director, she elaborated on several of these objectives and goals. She has drafted a new records management policy and is awaiting approval to distribute it. Her top priority in the next few months is to create an enterprise records retention schedule, eliminating the confusion that currently exists with the many different sources of records retention guidance throughout the organization. It will be important that this retention schedule is harmonized with the retention information currently embedded in the standard practice documents, as a first step. Over time, PG&E must decide whether to centralize all retention information into its enterprise retention schedules and, if so, must engage in a comprehensive effort to update those standard practices currently containing the information and remove it to avoid confusion.

The Director's support of the Documentum rollout dovetails with the overarching plan for Project Mariner, discussed above. In particular, she is developing an enterprise-wide, high-level taxonomy to consistently identify asset-related and other critical documents whether for gas transmission or distribution, electric supply or power generation. This taxonomy[129] will increase consistency and minimize confusion and conflict in identifying information throughout the organization.

In summary, PG&E's approach to managing pipeline-related data going forward fully meets both the letter and spirit of the "traceable, verifiable and complete" requirement. The completion of the MAOP Validation effort, along with the other aspects of the Pipeline Records Integration Program will lay a robust foundation on which PG&E can build a program that not only protects and preserves information but allows users maximize the value of these information assets, resulting in increased productivity, increased safety and reduced costs. PG&E has hired a Director of Information

129 PG&E Enterprise Taxonomy, undated, provided during interview with Leslie Banach, Director of Information Management Compliance, May 15, 2012.

Management Compliance to spearhead the creation of its first truly enterprise-wide records and information management program and has established a Records Management Steering Committee to support the central program development and implementation across the Company. Finally, the efforts that started in the Gas Operations Division in response to the tragic events at San Bruno and the subsequent regulatory scrutiny will be harmonized with the forthcoming enterprise-wide initiatives ultimately providing PG&E with a very strong information-based culture.

F. Conclusion

Overall, I believe that the Duller/North Report focuses on a few admittedly negative elements of PG&E's records management program as it existed over the past 50 years. Based on these few points, CPSD's experts extrapolate that PG&E neglected its obligations to its regulators and the public in terms of creating, maintaining and preserving appropriate records. Based on my review of the same documents, I cannot reach this conclusion. I agree that the program had flaws, but I also find that there were attempts to determine the appropriate retention information (e.g., PG&E's interaction in the mid-1970s asking the Commission for more clear direction related to records retention). I find that the embedding of records retention instructions in standard practice documents rather than in a centrally issued records retention schedule is not unusual and met the needs of the engineers at the time.

PG&E has acknowledged these shortcomings and is committing significant resources to creating a more robust records management environment for the future, in support of meeting the "traceable, verifiable and complete" recordkeeping requirement. I find their plan to be a good start with many innovative ideas. Execution of the plan will require diligence on the part of Gas Operations, the enterprise-wide records management program, and all other parts of the company. Critical to the success of the plan is a necessary change in PG&E's culture, moving from a culture focused on daily operations to one that lives the idea that information is an integral part of those daily operations.

The Duller/North Report fails to provide real insight into PG&E's records management program over time. The alleged violations found by CPSD's experts are based on an incomplete review of the existing documents, focusing solely on the centrally-issued records retention schedules and ignoring the

standard practice documents. The combination of the use of GARP®, a model better suited for a current state assessment than for a retrospective review, and the gap relating to the records retention schedules and standard practices, calls the entire report into question. PG&E's approach to records management over time was not ideal, but was not unusual. PG&E is poised to build a much stronger records management environment in the future.

PACIFIC GAS AND ELECTRIC COMPANY'S
RESPONSE TO THE CONSUMER PROTECTION AND SAFETY DIVISION'S
REPORTS:

RECORDS MANAGEMENT WITHIN THE GAS TRANSMISSION DIVISION OF PG&E PRIOR TO THE NATURAL GAS TRANSMISSION PIPELINE RUPTURE AND FIRE, SAN BRUNO, CALIFORNIA, SEPTEMBER 9, 2010

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APPENDIX A – MAURA DUNN, CV

DUFF & PHELPS

PROFESSIONAL CREDENTIALS

Maura L. Dunn
Director
Duff & Phelps, LLC

Maura Dunn is a Director in the Washington, DC, office of Duff & Phelps, LLC. She leads the Enterprise Information Management/Records Strategies practice within Legal Management Consulting. Maura has more than 25 years' experience in all aspects of records management (RM) program assessment and development, leading projects to assess, develop and implement records and information management programs for global corporations and federal agencies in the civil, defense and intelligence sectors.

Professional Experience

- Leads global Enterprise Information Management/Records Strategies practice area, overseeing multiple client engagements in developing and implementing enterprise-wide information management programs. Clients include global entertainment company, global luxury goods designer and retailer, global Internet content and advertising company, large regional utility and multinational non-profit, among others. Previously, led national team supporting dozens of federal government agencies as well as select private sector clients. Projects span assessment and development of discovery preparedness programs, comprehensive RIM programs, Enterprise Information Maps and Backfile Characterizations. These latter techniques are key to implementing a process-centric approach to managing information, linking business functions and processes to the information that is created by, is generated by or supports them.

- Conducted comprehensive assessment of large regional utility records and information management program; facilitated interactive visioning session with senior executives and developed program strategy. Using the process-centric approach, which her team developed, supervised development of an Enterprise Information Map, Backfile Characterization, Enterprise Taxonomy, Enterprise File Plan and Records Retention Schedule. In 2011, took over leadership of the program from the internal director in an outsourced role. Responsible for program implementation, including the company-wide implementation of an enterprise content and records management system (FileNet P8).

- Currently leading the development and implementation of a global records management program for a medical device company. Program development to date includes an Enterprise Information Map, Enterprise Taxonomy, Enterprise File Plan, and a Records Retention Schedule. Also conducting a Backfile Characterization on the email backfile to determine risk related to disposition of emails that either do not meet the definition of a record or which have met their retention requirements.

- Led development of global records and information management program for multi-national luxury goods designer/manufacturer/retailer. Developed a web-based, self-service toolkit to support global implementation with minimal staff resources required.

Phone: 312-697-4765 ♦ Fax: 312-265-3506 ♦ Mobile: 610-659-6678 ♦ E-mail: maura.dunn@duffandphelps.com
311 South Wacker Drive, Suite 4200, Chicago, IL 60606

- Led discovery preparedness program assessment project for multi-national entertainment organization (TV, movies, publications, etc.). Program encompassed policy, process and technology to ensure cost-effective, comprehensive and efficient response to electronic discovery and other information requests. Project included a vendor selection and proof of concept for ediscovery technology.

- Led retention schedule refresh for multi-national Internet advertising and content company; oversaw development of *Enterprise Information Map*; and facilitated interactive visioning session with senior executives. Currently developing a self-service records wizard to distribute records retention information to all staff worldwide, as records staff resources are limited. Also conducting a *Backfile Characterization* of more than 9 TB of uncontrolled electronic data stored on network share drives.

- Previously, led nationwide team providing support to multiple federal agency records management programs, including U.S. Environmental Protection Agency, U.S. Department of Treasury, U.S. Department of Homeland Security, and U.S. Department of Health and Human Services, among others. Projects included development and implementation of scanning operations, electronic document management systems, Web-based public access systems, and program-specific information management systems. Also led comprehensive assessment, revitalization and implementation projects for RIM programs at the Treasury, two divisions of DHS and an agency in the intelligence community.

- For the U.S, Marine Corps, oversaw a comprehensive, systematic search of the Camp Lejeune training base. This project involved more than 40 staff reviewing 700 buildings in search of potentially relevant documents going back more than 50 years. The team developed a detailed, statistically sound approach to quickly assessing the existing documentation and escalating the search if any of a series of triggers was met.

- Select projects for Fortune 500 companies include: the selection and implementation of a document generation system (top 5 U.S. mortgage originator); the development of an enterprise-wide RM policy, including litigation hold procedures and master retention schedule (financial services and insurance company); and the development of an electronic records management strategy for a multi-national pharmaceutical and biosciences firm.

- Regularly chosen to speak on RM topics at various venues, as well as deliver extensive training on RM programs to a wide variety of audiences.

Education & Certifications

B.A. - English, Georgetown University, Washington, DC
M.L.S. - Library Science, University of Maryland, College Park, MD
Certified Records Manager (CRM) – Institute of Certified Records Managers
Certified Project Management Professional (PMP) – Project Management Institute
Previously granted access to classified information at the Top Secret/Secure Compartmented Information (TS/SCI) level

Professional Associations and Affiliations

ARMA International - The Information Management Professionals (multiple volunteer leadership positions over the past 15 years)
AIIM - The ECM Association, Member
Project Management Institute (PMI), Member
Institute of Certified Records Managers (ICRM), Member

Publications & Presentations

Publications

- *Records and Information Management: Essential to Organizational Compliance and Litigation Risks* - interview with Maura Dunn, Terry Coan and Gordon Workman, Metropolitan Corporate Counsel, October 2008
- *'GPS' for your Organization: The Art and Science of the Enterprise Information Map*, Paula Walker, Maura Dunn and Jeff Pierantozzi, Metropolitan Corporate Counsel, December 2008
- *Weathering the Storm: Timely, Complete and Cost Effective Discovery*, Margaret Daley and Maura Dunn, Duff & Phelps white paper, January 2009
- *Cost Containment Through a Robust RIM Program*, Maura Dunn and Diane Carlisle, ARMA International's Hot Topic: Gearing up for e-Discovery, March 2009
- *The New Business of Managing Information - A Process-Centric Approach*, Robert Kirtley, Maura Dunn and Lee Karas, Metropolitan Corporate Counsel, September 2009
- *Case Study: Meeting Compliance Requirements through a Comprehensive Records Management Program* (three parts) Parts 1 and 2 with Diane Carlisle, Part 3 with Gordon Workman, Expert and Legal Management Insights, 2009 (serial)
- *Mission Matters*, Donna Vitalie, Robert Kirtley, Maura Dunn and Lee Karas, Metropolitan Corporate Counsel, January 2010
- *Why We Still Need Records Management*, Robert Kirtley, Maura Dunn and Lee Karas, Metropolitan Corporate Counsel, October 2010
- *The Principles of Corporate Governance and What This Means for your Information*, Robert Kirtley, Maura Dunn and Paula Walker, Metropolitan Corporate Counsel, April 2011
- *How a Robust Records and Information Management Program Can Protect your Intellectual Property and Information Assets*, Robert Kirtley, Maura Dunn and Jeff Pierantozzi, Metropolitan Corporate Counsel, June 2011
- *Case study 1: Achieving compliance through process-centric retention scheduling*, Paula Walker and Maura Dunn, in Managing Records Retention and Disposal, Alison North, Ark Group in association with InsideKnowledge, 2011

Presentations

- AIIM International Conference 2007, Boston, MA: *Process-based Records Management,* Maura Dunn
- ARMA International Conference 2007, Baltimore, MD: *Why Manage Your Records Management Project?* Maura Dunn, Lee Karas, Jeff Pierantozzi and Scott Richmond
- ARMA International Conference 2007, Baltimore, MD: *Collaborative Technologies - email, Wikis, Blogs, Instant Messages, etc.* - panel presentation ; Maura Dunn, facilitator
- Society of American Archivists 2008, San Francisco, CA: Maura Dunn, panelist on records management and ediscovery (mini Sedona session)
- Masters Conference on eDiscovery 2008, Washington, DC: Maura Dunn, panelist on records management and ediscovery
- ARMA International Conference 2008, Las Vegas, NV: *Digital Asset Management Strategy,* Maura Dunn
- LegalTech 2009, New York, NY: panelist on managing data across the enterprise
- ARMA International Conference 2009, Orlando, FL: *Enterprise Information Mapping: Protect Your High Risk Information* - two workshops, Maura Dunn, Gordon Workman, Lee Karas, Paula Walker and Jeff Pierantozzi
- ARMA/Recall Conference 2010, Riverside, CA: *Enterprise Information Mapping,* Maura Dunn and Jeff Pierantozzi
- Association of Corporate Counsel 2010, San Antonio, TX: *How and Why to Take your Records Management Program Global* - panel presentation; Maura Dunn, facilitator

- ARMA International Conference 2010, San Francisco, CA: *Envision the Future of your RIM Program*, Maura Dunn and Lee Karas
- ARMA International Conference 2011, Washington, DC: *Using Rigorously Controlled RIM Programs to Management Risk*, Maura Dunn and Lee Karas
- ARMA International Conference 2011, Washington, DC: *An in-depth technology primer for records managers*, Maura Dunn, Lee Karas and Jeff Pierantozzi
- ARMA International Conference 2011, Washington, DC: *First Step: Retention Schedule; Next Step: Implementation*, Maura Dunn and Lee Karas
- PRIMO Roundtable September 2011: *Collaboration - the Key to Success*, Maura Dunn
- AIIM International Conference 2011, Washington, DC: *RM Program Modernization*, Maura Dunn and Jeff Pierantozzi
- ARMA International Local Chapters – multiple presentations in several chapters (including Metro Maryland, Liberty Bell (Philadelphia, PA), Northern Virginia, Houston, Greater Chicago, Diamond State (Delaware), Pittsburgh, Denver, Lehigh Valley (Allentown, PA) over the past 10 years

APPENDIX B – INFORMATION SOURCES

ARMA International, Generally Accepted Recordkeeping Principles (GARP®), 2009

ARMA International, ARMA's GARP® Information Governance Maturity Model, 2009

ARMA International, GARP® Assessment Tool Tutorial, 2012

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National Transportation Safety Board telephonic interview with Larry J. Medina, June 27, 2011

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P2-4, GOV-7001S, Records Retention and Disposal Standard, 10/01/10

P2-192, SP 210.4-3: Retention of Records – General Office Departments, March 1, 1959

P2-193, SP 210.4-4, Retention of Records – Divisions, August 1, 1959

P2-195, Records Retention Schedule for Records in the Division, September 1, 1964

P2-205, Retaining and Destroying Records – Operating Regions, 6/1/86, also refers staff to the Supervisor of Records for assistance in answering questions, developing retention periods and carrying out records retention

P2-212, Pacific Gas & Electric Company Guide to Retention of Company Documents, 4/6/94

P2-1477, History File Requirements Manual, updated February 14, 1996

P3-10041, containing copies of SP 460.2-1, SP 460.21-4 and SP 460.2-2, 1968

PG&E Response to CPSD Data Request 23, GasTransmissionSystemRecordsOII_DR_CPUC_023-Q01, , December 17, 2011

PG&E Response to CPSD Data Request 25, GasTransmissionSystemRecordsOII_DR_CPUC_025-Q02(i)Supp01, January 24, 2012

Pacific Gas and Electric Company's Natural Gas Transmission Pipeline Replacement or Testing Implementation Plan, August 26, 2011

PAS55 Assessment Methodology (PAM) brochure, The Institute of Asset Management

PG&E's June 20, 2011, filing

PG&E Records Management Program Goals and Objectives, undated

PG&E Records Management Program Enterprise Taxonomy, undated

PriceWaterhouseCoopers (PwC), "Gas Operations Records and Information Management Assessment, March 31, 2012

PG&E PSEP Filing, Chapter 5: Pipeline Records Integration Program, August 26, 2011

Rofes, William L., "Appraising Records with Joint Federal-Industry Interests," Records Management Quarterly, Volume 1, Number 1, January 1967, pp 22-26

Spectra Energy 10K, filed 2/27/12

Stipulation RE: Order to Show Cause, March 24, 2011, Attachment A

Transcontinental Gas Pipeline Corporation 2011 10K, filed 2/27/12

Xcel Energy, Denver, CO, Letter to Public Utilities Commission of the State of Colorado, October 3, 2011

1 “Zubelake v. UBS Warburg” Kroll Ontrack website, accessed May 30, 2012

APPENDIX C – PG&E STAFF INTERVIEWED

Name	Correct Spelling	Titles
Tuesday, May 15, 8:00am, Emeryville	Brian M Daubin	Director - Production Maps and Records
	Valda M Sanders	Engineering Manager - Data & MAOP Validation Program
	Rajpreet Basuta	Supervisor(r)-MAOP/Emeryville - Data & MAOP Validation Program
Tuesday, May 15, 1:00pm, Bayshore	Joseph W McClain	Supervisor - Records Center
	Steve L Puccinelli	Records Analyst - Records Center
Tuesday, May 15, 2:00pm, 77 Beale Street	David Kelly	Director- Corporate Secretary
Tuesday, May 15, 3:00pm, 77 Beale Street	Leslie Banach	Director - - Information Management Compliance
Wednesday, May 16, 9:00am, 77 Beale Street	Charu Jain	VP, Business Technology
	Christopher L Vana	Christopher L Vana - Information Technology
	Leslie Banach	Director - - Information Management Compliance
Wednesday, May 16, 11:00am, Walnut Creek	Steve A Whelan	Sr. Director - Gas Engineering & Operations
Wednesday, May 16, 2:00pm, Walnut Creek	Joe A Medina	Director -Transmission Process & MAOP Validation
Thursday, May 17, 9:30am, Walnut Creek	Sumeet Singh	Senior Director-Asset Knowledge Management

APPENDIX D – ALLEGED VIOLATION GRAPHICS

Standard Practice 460.2-2: Physical Inspection: Pipelines, Mains, and Services

Retention Information

Life of Facility ✓

PG&E Standard Practices Effective Date(s)

1-Jan-65	1604
1-Apr-66	460.21-4
1-Feb-68	460.2-1
1-Jan-69	A-34
1-Jan-70	A-34
1-Jan-72	A-34
1-Jan-74	A-34
2-Apr-75	460.2-1
17-Nov-78	460.21-4
1-Oct-82	460.2-2
1-Nov-82	460-1
1-Jan-83	A-34
1-Jan-84	A-34
1-Jan-85	A-34
1-Jun-84	460.2-1
1-May-87	460-4
1-Jan-90	A-34
1-Jul-90	460-4
30-Jul-90	460.21-4
31-Dec-90	460.21-4
1-Jan-92	A-34
1-Jan-94	460.21-4
1-Jul-94	460.21-4
1-Jan-95	A-34
1-Apr-95	460.2-2
1-Jun-95	460.21-4
1-Aug-95	460.2-1
1-Jan-98	A-34
1-Jan-99	A-34
1-Jan-00	A-34
1-May-00	S4110
27-Sep-05	S4110
21-Dec-06	S4110 Attach 1
1-May-09	WP 4110-05

Alleged Violation 1 - Minimal compliance with retention policies regarding **leak survey maps** violates other requirements

Violation of 49 CFR, Section 192.709

Purported retention

Either five years or until the next leak survey record is made, whichever is greater

Time Period

April 2010 – September 2010

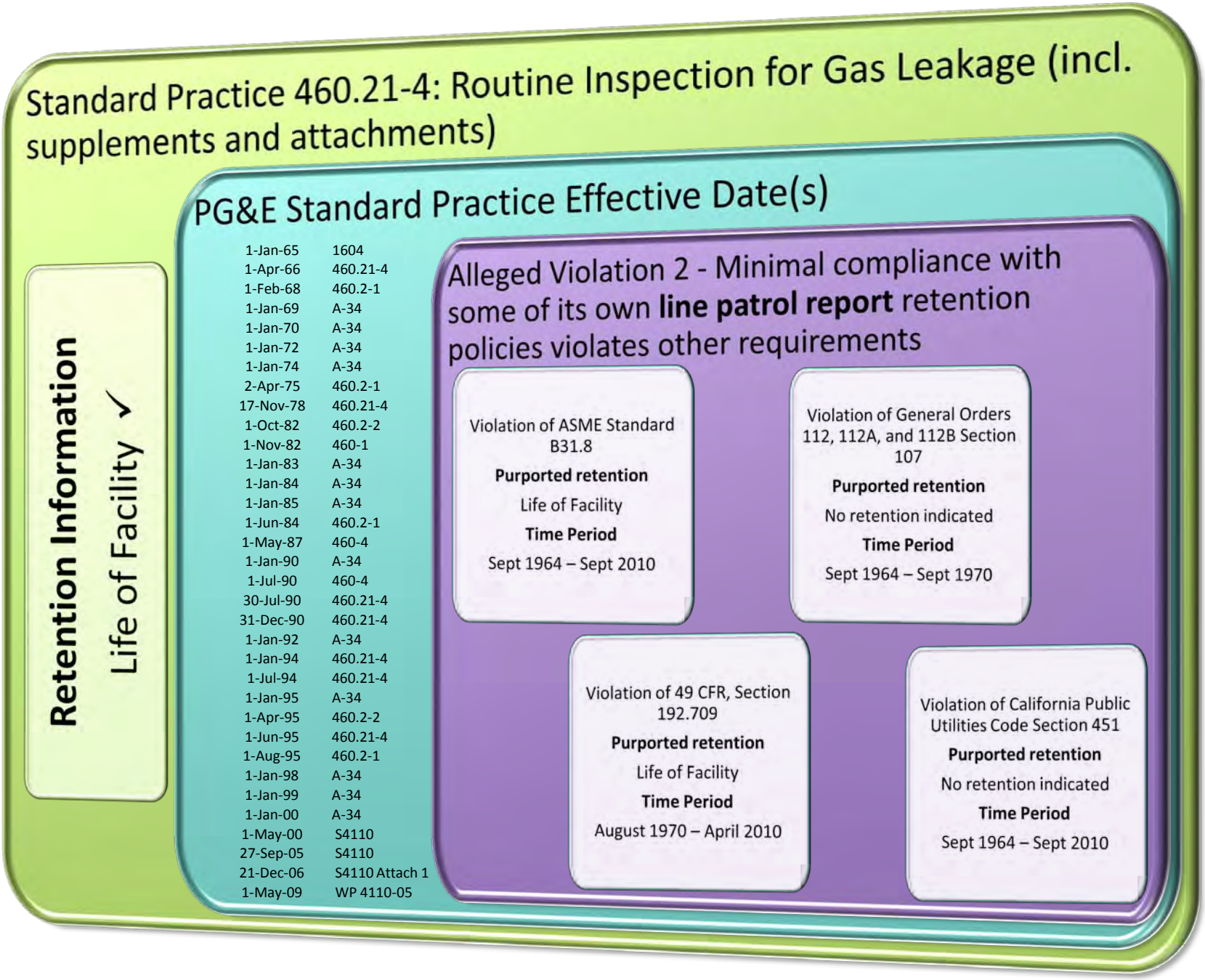
Violation of California Public Utilities Code Section 451

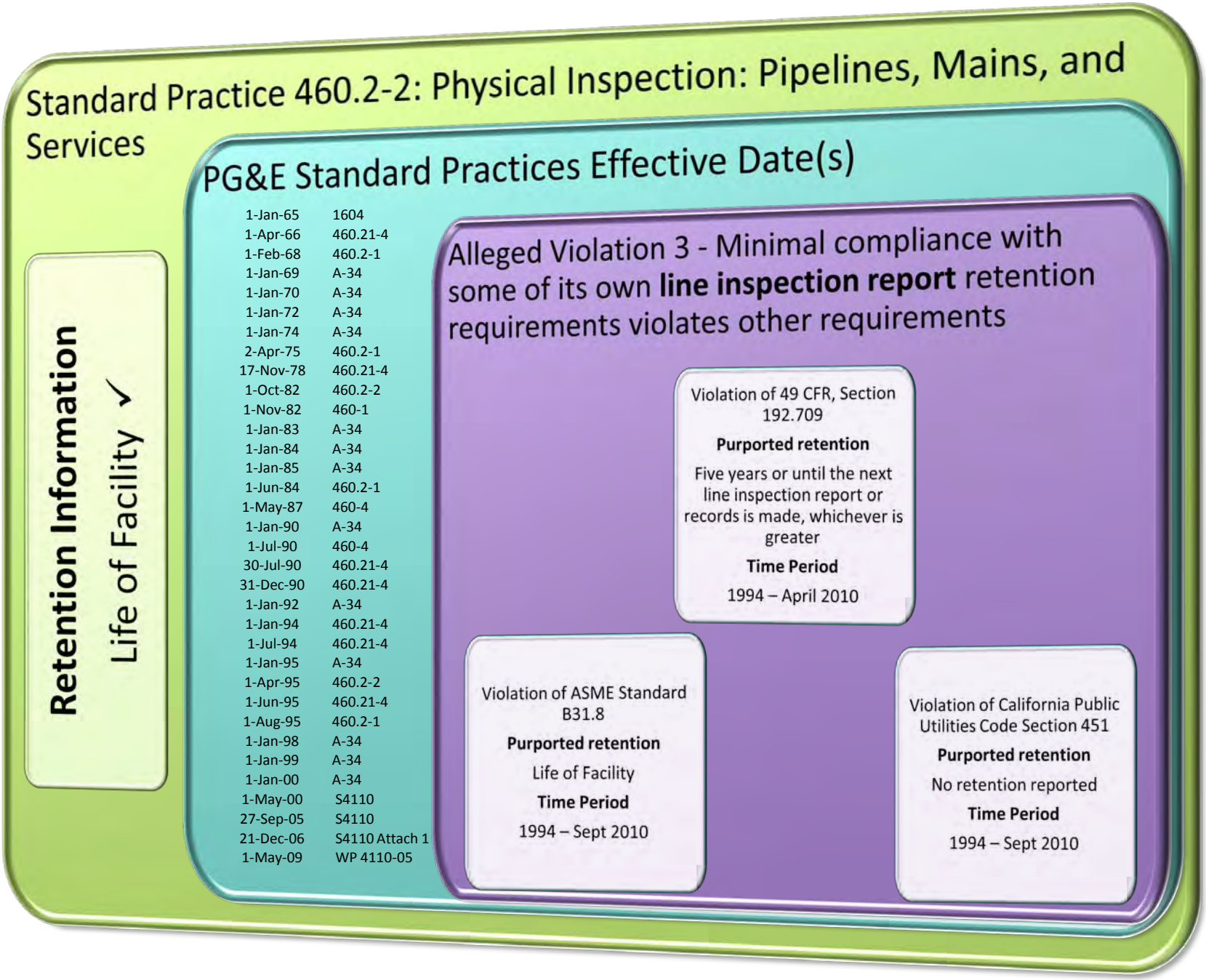
Purported retention

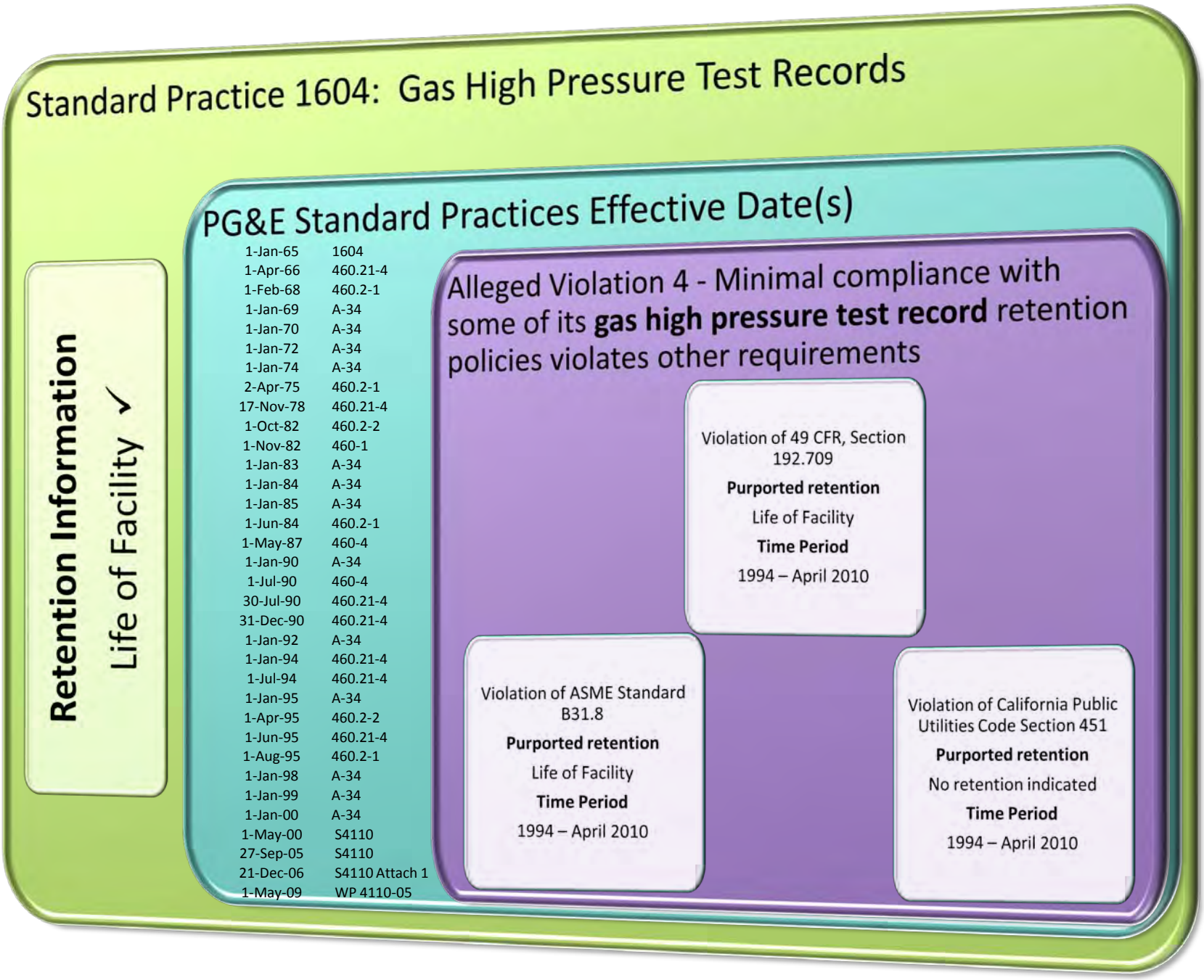
Life of Facility

Time Period

April 2010 – September 2010


Standard Practice 460.21-4: Routine Inspection for Gas Leakage (incl. supplements and attachments)
Retention Information
Life of Facility ✓
PG&E Standard Practice Effective Date(s)
1-Jan-65 1604
1-Apr-66 460.21-4
1-Feb-68 460.2-1
1-Jan-69 A-34
1-Jan-70 A-34
1-Jan-72 A-34
1-Jan-74 A-34
2-Apr-75 460.2-1
17-Nov-78 460.21-4
1-Oct-82 460.2-2
1-Nov-82 460-1
1-Jan-83 A-34
1-Jan-84 A-34
1-Jan-85 A-34
1-Jun-84 460.2-1
1-May-87 460-4
1-Jan-90 A-34
1-Jul-90 460-4
30-Jul-90 460.21-4
31-Dec-90 460.21-4
1-Jan-92 A-34
1-Jan-94 460.21-4
1-Jul-94 460.21-4
1-Jan-95 A-34
1-Apr-95 460.2-2
1-Jun-95 460.21-4
1-Aug-95 460.2-1
1-Jan-98 A-34
1-Jan-99 A-34
1-Jan-00 A-34
1-May-00 S4110
27-Sep-05 S4110
21-Dec-06 S4110 Attach 1
1-May-09 WP 4110-05
Alleged Violation 2 - Minimal compliance with some of its own line patrol report retention policies violates other requirements
Violation of ASME Standard B31.8
Purported retention
Life of Facility
Time Period
Sept 1964 – Sept 2010
Violation of General Orders 112, 112A, and 112B Section 107
Purported retention
No retention indicated
Time Period
Sept 1964 – Sept 1970
Violation of 49 CFR, Section 192.709
Purported retention
Life of Facility
Time Period
August 1970 – April 2010
Violation of California Public Utilities Code Section 451
Purported retention
No retention indicated
Time Period
Sept 1964 – Sept 2010


Standard Practice 460.2-2: Physical Inspection: Pipelines, Mains, and Services
Retention Information
Life of Facility ✓
PG&E Standard Practices Effective Date(s)
1-Jan-65 1604
1-Apr-66 460.21-4
1-Feb-68 460.2-1
1-Jan-69 A-34
1-Jan-70 A-34
1-Jan-72 A-34
1-Jan-74 A-34
2-Apr-75 460.2-1
17-Nov-78 460.21-4
1-Oct-82 460.2-2
1-Nov-82 460-1
1-Jan-83 A-34
1-Jan-84 A-34
1-Jan-85 A-34
1-Jun-84 460.2-1
1-May-87 460-4
1-Jan-90 A-34
1-Jul-90 460-4
30-Jul-90 460.21-4
31-Dec-90 460.21-4
1-Jan-92 A-34
1-Jan-94 460.21-4
1-Jul-94 460.21-4
1-Jan-95 A-34
1-Apr-95 460.2-2
1-Jun-95 460.21-4
1-Aug-95 460.2-1
1-Jan-98 A-34
1-Jan-99 A-34
1-Jan-00 A-34
1-May-00 S4110
27-Sep-05 S4110
21-Dec-06 S4110 Attach 1
1-May-09 WP 4110-05
Alleged Violation 3 - Minimal compliance with some of its own line inspection report retention requirements violates other requirements
Violation of 49 CFR, Section 192.709
Purported retention
Five years or until the next line inspection report or records is made, whichever is greater
Time Period
1994 – April 2010
Violation of ASME Standard B31.8
Purported retention
Life of Facility
Time Period
1994 – Sept 2010
Violation of California Public Utilities Code Section 451
Purported retention
No retention reported
Time Period
1994 – Sept 2010


Standard Practice 1604: Gas High Pressure Test Records
Retention Information
Life of Facility ✓
PG&E Standard Practices Effective Date(s)
1-Jan-65 1604
1-Apr-66 460.21-4
1-Feb-68 460.2-1
1-Jan-69 A-34
1-Jan-70 A-34
1-Jan-72 A-34
1-Jan-74 A-34
2-Apr-75 460.2-1
17-Nov-78 460.21-4
1-Oct-82 460.2-2
1-Nov-82 460-1
1-Jan-83 A-34
1-Jan-84 A-34
1-Jan-85 A-34
1-Jun-84 460.2-1
1-May-87 460-4
1-Jan-90 A-34
1-Jul-90 460-4
30-Jul-90 460.21-4
31-Dec-90 460.21-4
1-Jan-92 A-34
1-Jan-94 460.21-4
1-Jul-94 460.21-4
1-Jan-95 A-34
1-Apr-95 460.2-2
1-Jun-95 460.21-4
1-Aug-95 460.2-1
1-Jan-98 A-34
1-Jan-99 A-34
1-Jan-00 A-34
1-May-00 S4110
27-Sep-05 S4110
21-Dec-06 S4110 Attach 1
1-May-09 WP 4110-05
Alleged Violation 4 - Minimal compliance with some of its gas high pressure test record retention policies violates other requirements
Violation of 49 CFR, Section 192.709
Purported retention
Life of Facility
Time Period
1994 – April 2010
Violation of ASME Standard B31.8
Purported retention
Life of Facility
Time Period
1994 – April 2010
Violation of California Public Utilities Code Section 451
Purported retention
No retention indicated
Time Period
1994 – April 2010

Standard Practice 460.2-2: Physical Inspection: Pipelines, Mains, and Services

Retention Information

Life of Facility ✓

PG&E Standard Practices Effective Date(s)

1-Jan-65	1604
1-Apr-66	460.21-4
1-Feb-68	460.2-1
1-Jan-69	A-34
1-Jan-70	A-34
1-Jan-72	A-34
1-Jan-74	A-34
2-Apr-75	460.2-1
17-Nov-78	460.21-4
1-Oct-82	460.2-2
1-Nov-82	460-1
1-Jan-83	A-34
1-Jan-84	A-34
1-Jan-85	A-34
1-Jun-84	460.2-1
1-May-87	460-4
1-Jan-90	A-34
1-Jul-90	460-4
30-Jul-90	460.21-4
31-Dec-90	460.21-4
1-Jan-92	A-34
1-Jan-94	460.21-4
1-Jul-94	460.21-4
1-Jan-95	A-34
1-Apr-95	460.2-2
1-Jun-95	460.21-4
1-Aug-95	460.2-1
1-Jan-98	A-34
1-Jan-99	A-34
1-Jan-00	A-34
1-May-00	S4110
27-Sep-05	S4110
21-Dec-06	S4110 Attach 1
1-May-09	WP 4110-05

Alleged Violation 5 - Minimal compliance with some of its record retention policies of **transmission line inspections**, including patrol maintenance reports, trouble reports and line logs violates other requirements

Violation of ASME Standard B31.8

Purported retention

Life of Facility

Time Period

Sept 1964 – April 2010

Violation of General Orders 112, 112A, and 112B Section 107

Purported retention

No retention indicated

Time Period

Sept 1964 – 1970

Violation of 49 CFR, Section 192.709

Purported retention

Life of Facility

Five years or until the next line inspection report or records is made, whichever is greater

Time Period

August 1970 – June 1996

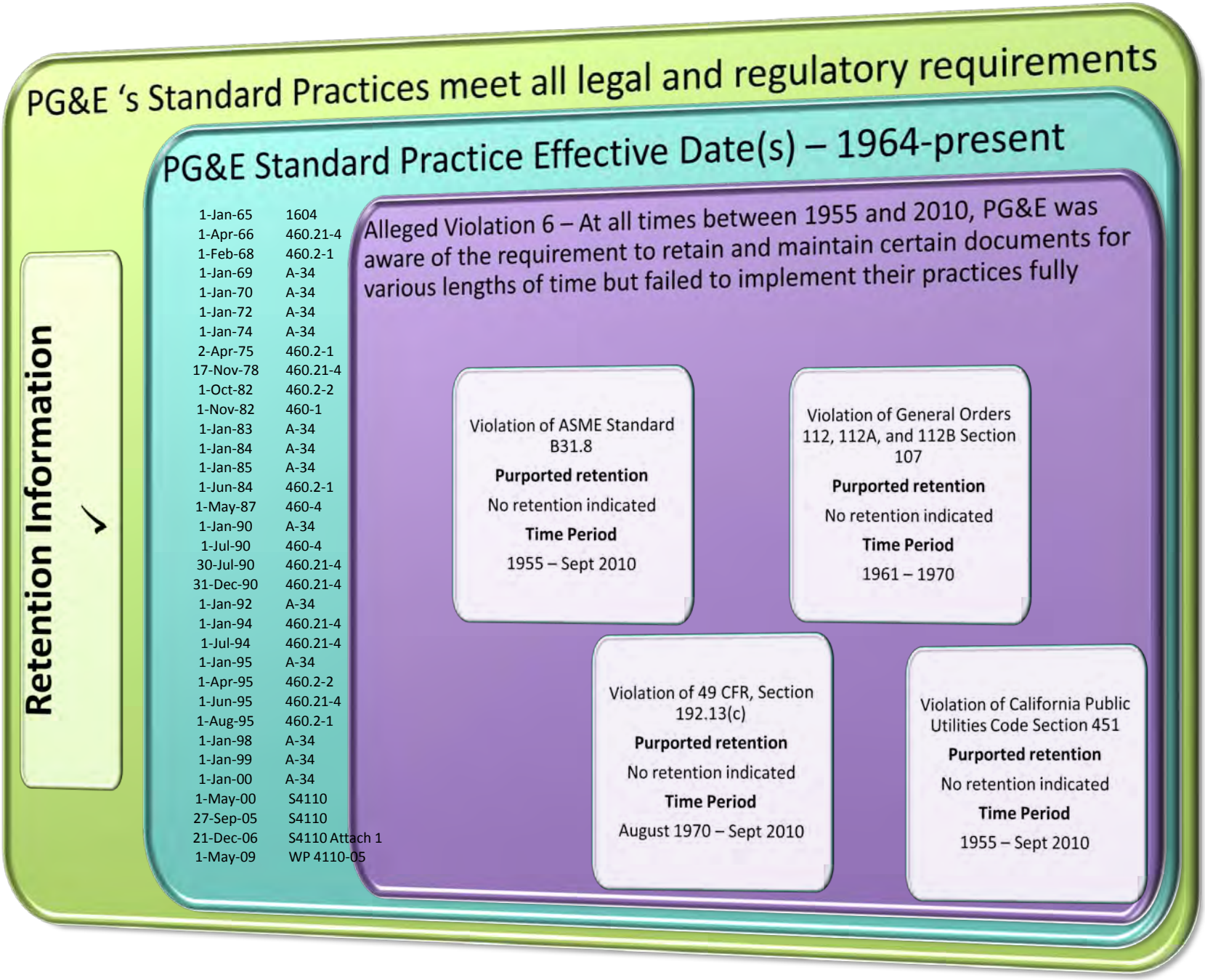
Violation of California Public Utilities Code Section 451

Purported retention

No retention indicated

Time Period

Sept 1964 – April 2010


PG&E 's Standard Practices meet all legal and regulatory requirements
PG&E Standard Practice Effective Date(s) – 1964-present
Retention Information
1-Jan-65 1604
1-Apr-66 460.21-4
1-Feb-68 460.2-1
1-Jan-69 A-34
1-Jan-70 A-34
1-Jan-72 A-34
1-Jan-74 A-34
2-Apr-75 460.2-1
17-Nov-78 460.21-4
1-Oct-82 460.2-2
1-Nov-82 460-1
1-Jan-83 A-34
1-Jan-84 A-34
1-Jan-85 A-34
1-Jun-84 460.2-1
1-May-87 460-4
1-Jan-90 A-34
1-Jul-90 460-4
30-Jul-90 460.21-4
31-Dec-90 460.21-4
1-Jan-92 A-34
1-Jan-94 460.21-4
1-Jul-94 460.21-4
1-Jan-95 A-34
1-Apr-95 460.2-2
1-Jun-95 460.21-4
1-Aug-95 460.2-1
1-Jan-98 A-34
1-Jan-99 A-34
1-Jan-00 A-34
1-May-00 S4110
27-Sep-05 S4110
21-Dec-06 S4110 Attach 1
1-May-09 WP 4110-05
Alleged Violation 6 – At all times between 1955 and 2010, PG&E was aware of the requirement to retain and maintain certain documents for various lengths of time but failed to implement their practices fully
Violation of ASME Standard B31.8
Purported retention
No retention indicated
Time Period
1955 – Sept 2010
Violation of General Orders 112, 112A, and 112B Section 107
Purported retention
No retention indicated
Time Period
1961 – 1970
Violation of 49 CFR, Section 192.13(c)
Purported retention
No retention indicated
Time Period
August 1970 – Sept 2010
Violation of California Public Utilities Code Section 451
Purported retention
No retention indicated
Time Period
1955 – Sept 2010

APPENDIX E – RETENTION INFORMATION CONTAINED IN STANDARD PRACTICES

	Title	Effective Date	Retention Language
460.2-1	P2-1240: PG&E SP 460.2-1, Patrolling: Pipelines and Mains	February 1, 1968	Transmission: Life of Pipeline Distribution Mains: Minimum of 3 years
	P2-437: PG&E SP 460.2-1, Patrolling, Pipelines and Mains	April 2, 1975	Transmission: Life of Pipeline Non-Transmission: Minimum of 3 years
	P2-440: PG&E SP 460.2-1, Patrolling, Pipelines and Mains	June 1, 1984	Transmission: Life of Pipeline Non-Transmission: Minimum of 3 years
	P2-441: PG&E SP 460.2-1, Patrolling, Pipelines and Mains	August 1, 1995	Transmission and Gathering: Life of Facility Distribution: Minimum of 3 years
460.2-2	P2-1325: 460.2-2: Physical Inspection: Pipelines, Mains, and Services	October 1, 1982	Life of Facility
460-4	P2-611: 460-4: CPUC and DOT Reportable Incidents and Conditions-Reporting	May 1, 1987	Investigative notes and supplementary material covered by SP 460.2-2 or SP 460.21-4: Life of Facility Investigative notes and supplementary material not covered by SP 460.2-1 or SP 460.21-4: Current year, plus 7 years All investigative notes, all material forwarded
	P2-612: 460-4: CPUC and DOT Reportable Incidents and Conditions-Reporting	July 1, 1990	Current year, plus 6 years

460.21-4	P2-1149: 460.21-4: Routine Inspection for Gas Leakage (incl. supplements and attachments)	April 1, 1966	Mains operating at more than 60 psi: Life of Main, plus 6 years Mains operating at less than 60 psi and not having an annual survey: 11 years Mains requiring annual surveys: At least 6
	P2-1151: 460.21-4: Periodic Leak Surveys of Gas Transmission and Distribution Facilities	November 17, 1978	Transmission mains: Life of Main, plus 6 years NonTransmission mains: Current and immediately previous survey Inspection records: Life of Facility
	P2-1153: 460.21-4: Periodic Leak Surveys of Gas Transmission and Distribution Facilities	July 30, 1990	Transmission mains: Life of Main, plus 6 years Non-Transmission lines: Current and immediately preceding survey Inspection records: Life of Facility Form A: Life of Facility
	P2-1155: 460.21-4: Periodic Leak Surveys of Gas Transmission and Distribution Facilities	December 31, 1990	Transmission mains: Life of Main, plus 6 years Non-Transmission lines: Current and immediately preceding survey Inspection records: Life of Facility Form A: Life of Facility

	P2-1156: C-T&CS S0350/460.21-4 - Supplement: Periodic Leak Surveys of Gas Transmission and Distribution Facilities	January 1, 1994	Transmission mains: Life of Main, plus 6 years Non-Transmission lines: Current and immediately preceding survey Inspection records: Life of Facility Form A: Life of Facility
	P2-1158: C-T&CS S0350/460.21-4 - Supplement: Periodic Leak Surveys of Gas Transmission and Distribution Facilities	July 1, 1994	Transmission Mains: Life of Main Non-Transmission Mains: Current and immediately preceding survey Form A: Life of Facility
	P2-1159: C-D-G0500/460.21-4: Special Leaks Survey	June 1, 1995	Transmission Mains: Life of Main Non-Transmission Mains: Current and immediately preceding survey Form A: Life of Facility

S4110	P2-1165: S4110: Leak Survey and Repair of Gas Transmission and Distribution Facilities (incl. attachment 1)	May 1, 2000	Transmission Main: Life of Main Non-Transmission lines: Current and immediately preceding survey, plus 1 year Leak Survey and Check Logs: Life of Facility, plus 1 year Leak Survey, Repair, Gas Quarterly Incident, and Inspection Report: Life of Facility, plus 1 year

	P2-66: S4110 Attachment 1: Leak Survey and Repair Procedures	December 21, 2006	Transmission: Minimum of 5 years (8 years for 5-year leak survey records) Non-Transmission: Latest and immediately preceding survey, plus 3 years. Leak, Survey and Leak Check Logs: Life of Facility, plus 1 year

WP 4110-05	P2-74: WP 4110-05: Leak Survey Procedures for Gas Transmission	May 1, 2009	Transmission: Minimum of 5 years (8 years for 5-year leak survey records) Non-Transmission: Latest and immediately preceding survey, plus 3 years. Leak, Survey and Leak Check Logs: Life of Facility, plus 1 year
	P2-1192: WP 4110-05: Leak Survey Procedures for Gas Transmission	May 1, 2009	Transmission: Minimum of 5 years (8 years for 5-year leak survey records) Non-Transmission: Latest and immediately preceding survey, plus 3 years. Leak, Survey and Leak Check Logs: Life of Facility, plus 1 year

SP 1604	DR18Q08: Design and Test Requirements for Gas Piping Systems	1965	Life of Facility
SP A-34	DR18Q08: Drawing 084509, same content and purpose as SP	1969	Life of Facility
SP A-34	DR18Q08: Drawing 283621, same content and purpose as SP	1970	Life of Facility
SP A-34	DR18Q08: Drawing 283621, same content and purpose as SP	1972	Life of Facility
SP A-34	DR18Q08: Drawing 283621, same content and purpose as SP	1974	Life of Facility
SP A-34	DR18Q08: Drawing 087712, same content and purpose as SP	1983	Life of Facility

SP A-34	DR18Q08: Drawing 087950, same content and purpose as SP	1984	Life of Facility
SP A-34	DR18Q08: Drawing 087950, same content and purpose as SP	1985	Life of Facility
SP A-34	DR18Q08: Drawing 087950, same content and purpose as SP	1990	Life of Facility
SP A-34	DR18Q08: Drawing 087950, same content and purpose as SP	1992	Useful Life of Facility
SP A-34	DR18Q08: Drawing 087950, same content and purpose as SP	1995	Useful Life of Facility
SP A-34	DR18Q08: Piping Design and Test Requirements	1998	Useful Life of Facility
SP A-34	DR18Q08: Piping Design and Test Requirements	1999	Useful Life of Facility
SP A-34	DR18Q08: Piping Design and Test Requirements	2000	Useful Life of Facility

APPENDIX F – THE ComEd BENCHMARKING MATERIALS

Records Management Benchmarking

Results summary

Updated March 2, 2012

ComEd conducted a 19-question benchmarking survey on to better understand the Records Management practices other companies have in place to enhance knowledge management, increase work efficiency and productivity, and ensure compliance with internal and external requirements. The survey focused on the following from responding utilities:

- The operating structure of each utility's RM program
- The perceived effectiveness of the RM program
- Storage, retention and disposition practices for physical records
- Whether current RM programs address electronic records
- Storage methods for electronic records

The results of the survey are discussed below. Please feel free to contact me with questions, *kingsley.smithandoh@ComEd.com*.

Participants: 10 utilities participated in the survey; company-specific responses are blinded:

• AEP	• Kansas City Power & Light (KCP&L)
• Central Vermont Public Service (CVPS)	• NSTAR
• ComEd	• Pacific Gas & Electric (PGE)
• Consolidated Edison (ConEd)	• PSE&G
• Florida Power & Light (FPL)	• Southern California Edison (SCE)

Survey Findings:

1) Almost all respondents have a formal RM program with documented policies, procedures and retention schedules
2) The most commonly used operating structure has the RM function reporting through Legal (approximately half of respondents are structured this way)
3) While only half of the respondents presently measure the effectiveness of their RM program, nearly all believe their program is "somewhat effective"
4) Nearly all respondents store records in local offices / departments as well as at an off-site central repository. The off-site repositories are almost equally split between company-owned and vendor-owned facilities
5) Eighty-percent of respondents have an indexing scheme for record storage. Accordingly, 90% of the respondents believe they are "very successful or "somewhat successful" in locating archived records

6) While RM programs generally address electronic records (90% of respondents), the responsibility for managing these types of records is generally less centralized than that for physical records
7) Seventy percent of respondents do not use off-site storage for electronic records

Response Summary:

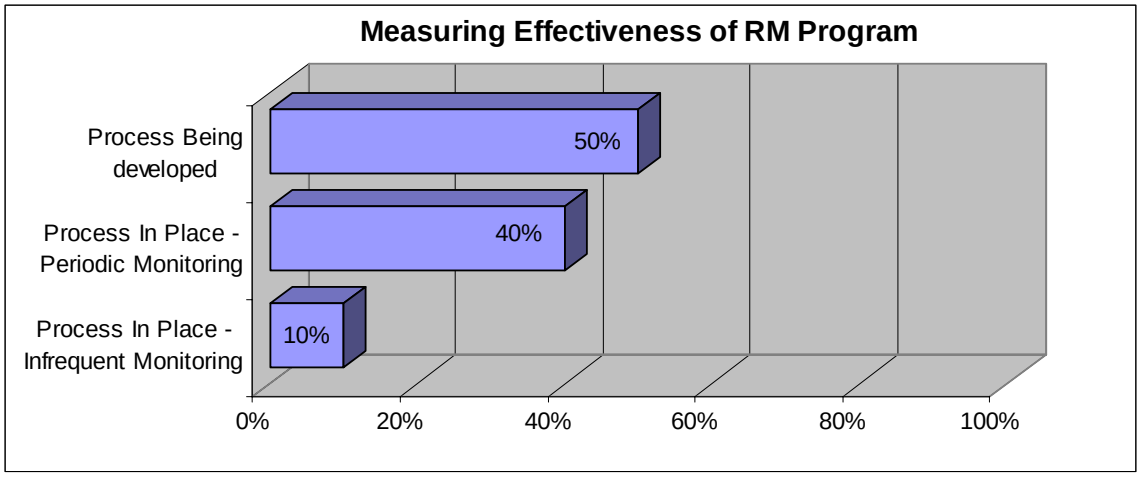
Question #1: Where does Records Management report up to within your organization and is it a Centralized or Decentralized function?

Fifty percent ultimately report through the Legal, with other responses such as Chief Information Officer, Environmental, and Ethics/Compliance. The vast majority of respondents (70%) indicated RM is centralized

Question #2: Does your company/organization have a formal Records Management program with documented polices, procedures and retention schedules?

Almost all respondents responded "Yes". The one respondent that answered "No" stated there are documented polices, procedures and retention schedules but no formal program.

Question #3: How does your company/organization measure the effectiveness, over time, of your Records Management Program?



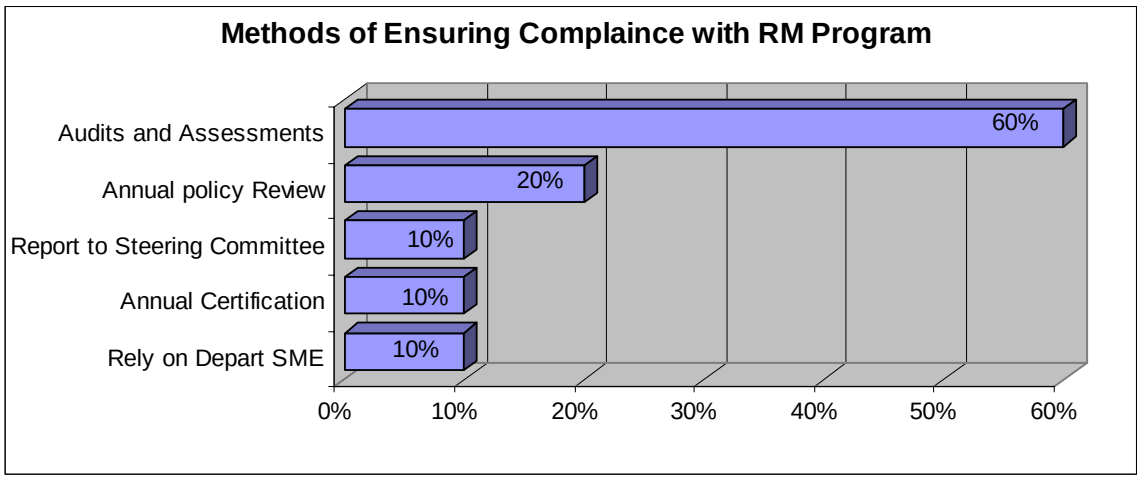
Some methods identified:

Company A: internal survey and project goals
Company D: infrequent benchmarking
Company F: internal audits
Company G: gap analysis
Company H: annual benchmarking

Question #4: How would you rate the effectiveness of your Records Management program? Please elaborate as necessary.

10% (one company) responded as **"very effective";** 90% indicated "somewhat effective"

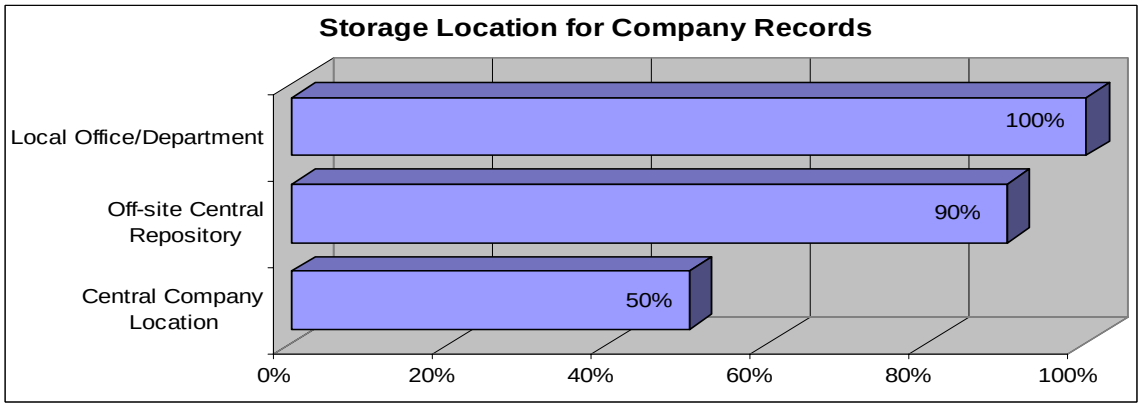
Question #5: How does your company/organization ensure that Records Management policies and procedures are being adhered to?



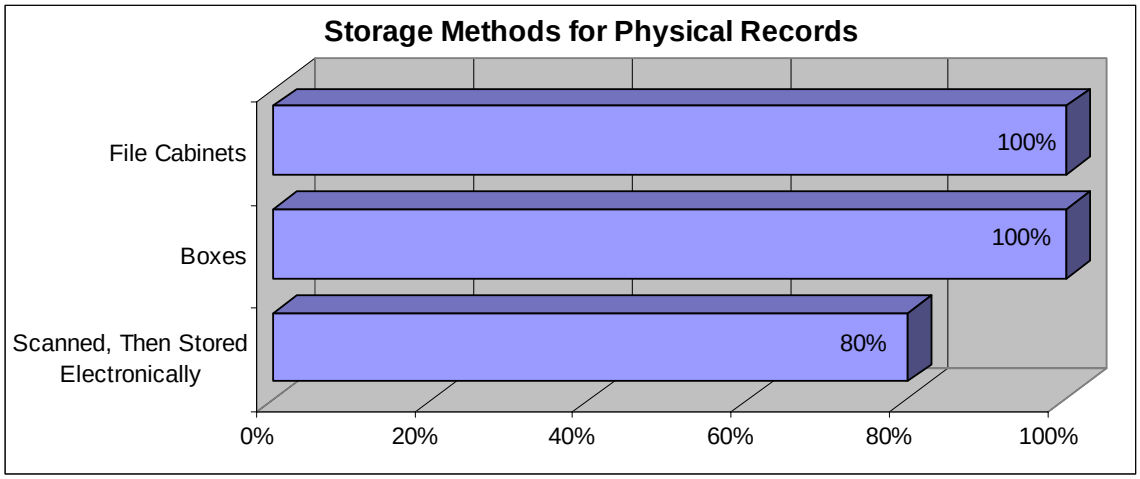
Question #6: Do you believe that all levels in your company/organization understand that Records Management is a key component to risk management?

Ninety percent of respondents don't believe this level of understanding exists at all levels.
Company A: senior management is well aware, but understanding is lacking otherwise
Company C: education and training will be emphasized under new initiative
Company E: has increased training and communications to drive importance home
Company F: non-mandatory training with room for improvement
Company I and J: plan to increase understanding via effective training/ communications

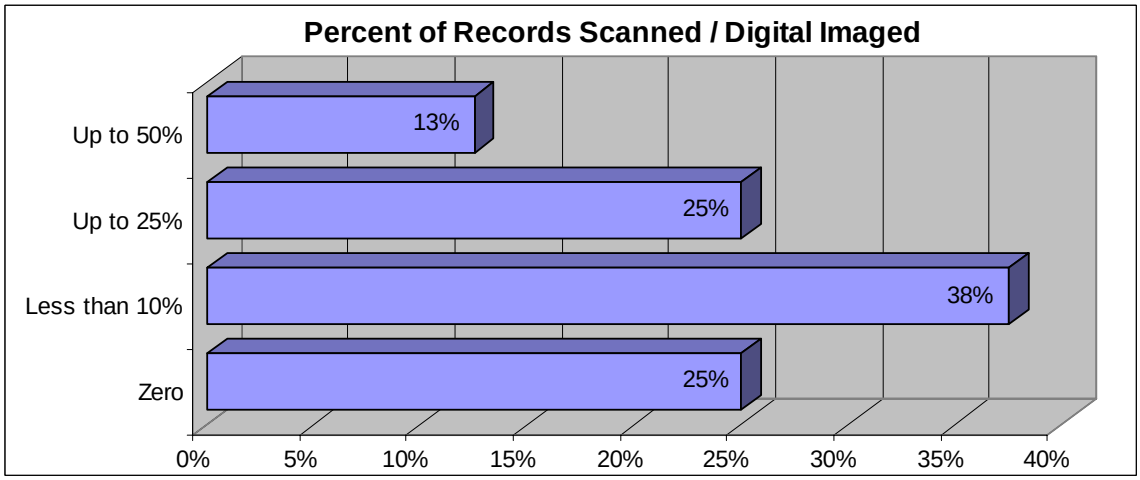
Question #7: Where are your company Records stored (e.g. - local office, local department, central company location, off-site at a central repository)?



Question #8 How are your physical records stored (e.g. - file cabinets, boxes, scanned and stored electronically)?



Question #9: If you are currently scanning / digital imaging physical records, what percent of your physical records are being scanned / digital imaged?



Question #10: What methods are used to track the location and disposition of physical records (in house software, off the shelf product/software, manual logs)?

Sixty percent of the respondents use an off-the-shelf product, while 30% utilize in-house software

Company A: OpenText Physical Object Manager (Off-the Shelf)
Company E: OmniRIM (Off-the Shelf)
Company G: Accutrac (Off-the Shelf)

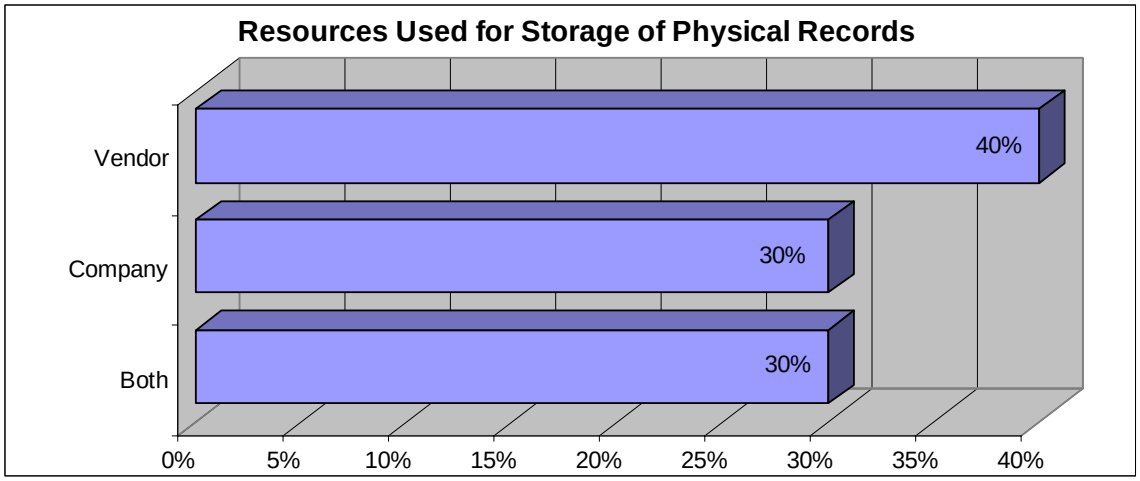
Question #11: Do you have a business unit indexing scheme to record the location, type and retention period for company records?

Eighty percent of respondents have some sort of indexing scheme.

Question #12: Does a Records Management criteria exist that gives guidelines/mandates on how long a physical record can be retained within a local office/department prior to sending to a central repository or off-site storage?

The responses were spilt evenly; with 50% indicating that such criteria exists.

Question #13: Do you use an off-site vendor to store/archive physical records or do you store/archive your physical records on company property with company personnel?

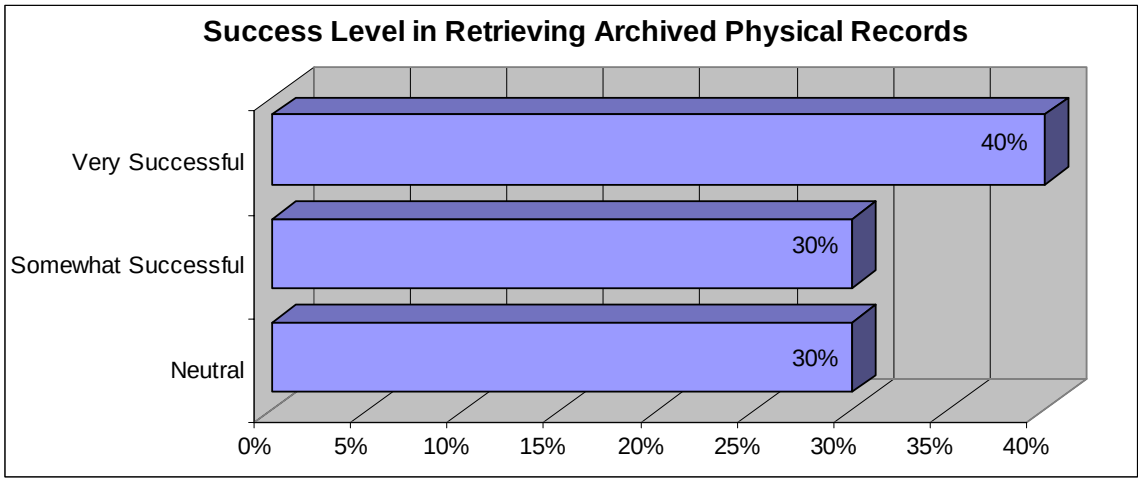


Question #14: Do you have an active disposition / destruction process for records that have gone beyond their retention schedule?

All respondents answered "Yes".

Company A: Once a year we do a purge of the records center
Company B: Only for our records stored in offsite facilities
Company C: For documents stored at the Records Center, a process is followed for preparing destruction notices, obtaining required authorizations, and determining the appropriate destruction method
Company E: Processes that govern the roles of the business units, Records Management group, and Corporate Records Center in the disposition process
Company F: Procedures for both scheduled and unscheduled destruction processes. Destructions are scheduled twice each year. Unscheduled destructions occur as required.
Company G: Annual notification to all Company employees that provides links to procedures for instructions on record disposition

Question #15: How successful have you been when trying to locate archived records?



Question #16: Who currently has the primary responsibility for the day-to-day management of electronic records in your company/organization?

Company A: those that create and use the information
Company B: unstructured records – individual employees; structured records – IT, line
Company C: Departments have primary responsibility
Company D: Departments have primary responsibility
Company E: Decentralized and business units have management responsibility
Company F: email – IT; applications – IT and business owner; network file shares – business owner
Company G: Information Management
Company I: Individual business areas and employees, along with IT
Company J: Departments have responsibility; except for structured computerized systems (IT has responsibility)

Question #17: Do your Records Management Policies & Procedures address electronic records?

Ninety percent of respondents indicated their RM Policies and Procedures do address electronic records.

Question #18: Does your company store electronic information? If yes, what software product(s) does your company use for electronic information records management (e.g. Email, share drives, etc)?

Ninety percent of respondents answered “Yes”.

Company A: OpenText Content Server

Company B: Filenet and Filenet RM on a limited basis; Symantec Vault used for email and content from network drives
Company D: Lotus Notes, Documentum and other off-the-shelf applications
Company E: OpenText
Company F: Symantec's Enterprise Vault
Company G: Documentum and SAP

Question #19: Do you use an off-site vendor to store/archive electronic records? If yes, what vendor do you utilize for storing off-site electronic records?

Seventy percent do not utilize an off-site vendor while 30% do.

Company D: NRC
Company H: Iron Mountain

Benchmarking Survey: Records Information Management

	#	Question	Company A	Company A Elaborations	Company B	Company B Elaborations	Company C	Company C Elaborations	Company D	Company D Elaborations
Records Management Program	1	**Where does Records Management report up to within your organization and is it a Centralized or Decentralized function?**	Decentralized with a Corporate Records Manager reporting to CIO (IT Dept) who is responsible for program management. All departments are responsible for adhering to policy, boxing records, using the EDMS and meeting e-Discovery expectations.	Corporate Records Manager is the corporate-wide role for records management. The role heads the Information Asset Management Program (IAM) which is responsible for ensuring an effective, efficient and compliant information environment. Each department is responsible for following policy and working with records manager.	Mgr - Legal Business & Administrative Support EVP & General Counsel We have centralized records management that provides guidance, standards and offsite storage. RM is has decentralized implementation at the business level.	Individual business programs and practices must align with enterprise-wide program.	Records Management is currently a decentralized function at the company.	The Corporate Secretary reports to the General Counsel and issues the company's overarching Record Retention and Disposal Standard. Also, this office is responsible for the operation of the company's central repository for physical records and the maintenance of the Record Retention page on the company's intranet web site.	Environmental and centralized	
	2	**Does your company/organization have a formal Records Management program with documented polices, procedures and retention schedules? Please elaborate as necessary.**	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☑ Other: Documented Mission, Vital few add goals	The Information Asset Management Program which is responsible for ensuring an effective, efficient and compliant information environment is mandated buy the company's Information Asset Management Policy . The IAM Policy is a corporate level policy .sponsored by the General Counsel and VP of Business Services.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	Yes we have a formal program with policy, procedures and an Enterprise wide retention schedule at the corporate level.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	No. The company does not have a formal Records Management Program. It has a company-wide Record Retention and Disposal Standard and departments prepare record retention guides that are posted on the Record Retention page on the company's intranet web site.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	
	3	**How does your company/organization measure the effectiveness, over time, of your Records Management Program?**	Measures include: - # of Violations - employee surveys - management survey - meeting IAM project goals	We are also measuring ourselves against the GARP maturity model.	We do not currently measure the effectiveness of the overall program but we plan to evaluate our options for doing so and implement as necessary.		The company does not currently measure the effectiveness of its decentralized Records Management program.	This will be part of a comprehensive Records and Information Management Initiative, which is in the early stages of development and will include processes to ensure compliance with retention policies.	infrequent benchmarking	
	4	**How would you rate the effectiveness of your Records Management program? Please elaborate as necessary.**	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	We do not "test" employees knowledge around RM, so it is hard to gauge effectiveness.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	We have limited effectiveness depending upon the degree to which the businesses implement our schedule and practices.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	The company is implementing a Records and Information Management Initiative to address records retention and disposal practices as well as broader records management issues.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	
	5	**How does your company/organization ensure that Records Management policies and procedures are being adhered to?**	Records Management reviews. External audit approx. every 4 years. The corporate records manager does make a quarterly report for the company's Risk Oversight and Compliance Committee.	The Corporate Records Manager is responsible for reporting out the RM health of the entire org via an execive level steering committee. We do hope to have Internal Audit engage in periodic friendly reviews of the enterprise/	We are currently planning to implement a revised Records liaison program to increase compliance and improve our ability measure implementation.		(1) The Corporate Secretary requires an annual certification by each officer that their department is in compliance with the company's Record Retention and Disposal Standard and (2) Internal Audit may examine records management practices as part of the internal audits it performs.	The Records and Information Management Initiative will examine ways to ensure adherence to the records management policies and procedures.	through legal reviews	
	6	**Do you believe that all levels in your company/organization understand that Records Management is a key component to risk management? Please elaborate as necessary.**	☐ Yes ☑ No	The corporate records manager does make a quarterly report for the company's Risk Oversight and Compliance Committee. Thus the senior management in this process are aware, however, while I do not have data to prove this, it is my belief that most employees under the senior management level are generally not aware of the relationship between RM and effective, efficient and compliant information management and an effective, efficient and compliant company.	☐ Yes ☑ No	The understanding of risk varies but it is increasing as we communicate the need for managing our electronic content.	☐ Yes ☑ No	Education and training for all levels within the company regarding record retention and disposal responsibilities and requirements and the potential impacts associated with non-compliance will be part of the Records and Information Management Initiative.	☐ Yes ☑ No	
Physical Records	7	**Where are your company Records stored (e.g. - local office, local department, central company location, off-site at a central repository)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ Local Office or Department 80 ☑ Central Company Location 20 ☐ Off-site Central Repository ☐ Other	We have a controlled records center, but we do not inventory and track paper in the offices. We do not have a enterprise wide filing structure for paper records.	☑ Local Office or Department 60 est ☐ Central Company Location ☑ Off-site Central Repository 40 est. ☐ Other		☑ Local Office or Department ☑ Central Company Location ☑ Off-site Central Repository ☐ Other		☑ Local Office or Department 30% ☐ Central Company Location ☐ Off-site Central Repository ☑ Other: 6 vendor locations and 1 in house 70%	
	8	**How are your physical records stored (e.g. - file cabinets, boxes, scanned and stored electronically)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ File Cabinets 75 ☑ Boxes 20 ☑ Scanned then Stored Electronically 5 ☐ Do Not Store Physical Records ☐ Other		☑ File Cabinets ☑ Boxes ☐ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	Local office/departments - file cabinets or rooms depending upon space available at the location Offsite - central facility or centrally coordinate storage with vendor based upon business' storage need	☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other		☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	
	9	**If you are currently scanning / digital imaging physical records, what percent of your physical records are being scanned / digital imaged?**	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☑ Less than 10% ☐ Do Not Scan / Digital Image		☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☑ Less than 10% ☐ Do Not Scan / Digital Image	We do not centrally or routinely scan physical records. Individual business may scan be scanning and storing locally.	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☐ Less than 10% ☑ Do Not Scan / Digital Image	Some departments have extensive scanned records and they are stored electronically but the percentage is unknown.	☐ 100% ☐ Up to 75% ☐ Up to 50% ☑ Up to 25% ☐ Less than 10% ☐ Do Not Scan / Digital Image	
	10	**What methods are used to track the location and disposition of physical records (in house software, off the shelf product/software, manual logs)? Please elaborate as necessary.**	☐ In-house Software ☑ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	OpenText Physical Object Manager	☑ In-house Software ☐ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	We use an in-house designed application to track and control all offsite storage of records across all utilized facilities. Records retained and destroyed locally are not tracked.	☐ In-house Software ☑ Off the Shelf Product/Software ☐ Manual Logs ☐ Other		☑ In-house Software ☐ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	

Benchmarking Survey: Records Information Management

	#	Question	Company A	Company A Elaborations	Company B	Company B Elaborations	Company C	Company C Elaborations	Company D	Company D Elaborations
Physical Records	11	**Do you have a business unit indexing scheme to record the location, type and retention period for company records?** **Please elaborate as necessary.**	☑ Location ☑ Type of Record ☑ Retention Period ☐ Other	We have this only for boxes that go into the records center.	☑ Location ☑ Type of Record ☑ Retention Period ☐ Other	Records stored offsite are classified consistent with our Enterprise Schedule.	☑ Location ☑ Type of Record ☑ Retention Period ☐ Other	We have an indexing scheme for our records at our off-site vendor location as well as for our Records Center. Manual and/or electronic logs exist within some departments.	☑ Location ☑ Type of Record ☑ Retention Period ☐ Other	
	12	**Does a Records Management criteria exist that gives guidelines/mandates on how long a physical record can be retained within a local office/department prior to being sent to a central repository or off-site storage for archiving?** **Please elaborate as necessary.**	☐ Yes ☑ No		☑ Yes ☐ No	We have general recommendation. We accommodate transfer or ongoing retention at the location based on space needs	☐ Yes ☑ No	Departments are not required to use the company's Records Center. The Guides to Record Retention prepared by the responsible departments and posted on the Record Retention page of the company's intranet web site provide information on how long records are to be retained and if they are to be filed on-site or can be sent to storage.	☑ Yes ☐ No	
	13	**Do you use an off-site vendor to store/archive physical records or do you store/archive your physical records on company property with company personnel?** **Please elaborate as necessary.**	☐ Yes ☐ No	We store all company records on company property . The records center does not have a staff, per se. However, only select employees have access (Facilities Dept and IAM)	☑ Yes ☐ No	We store and operate one company owned facility which is the primary offsite storage, commercial vendors are used to meet overflow or special circumstances.	☑ Yes ☐ No	We currently store records at both the Records Center (on company property with company employees) and at an off-site vendor's facility.	☑ Yes both ☐ No	
	14	**Do you have an active disposition / destruction process for records that have gone beyond their retention schedule?** **Please elaborate as necessary.**	☑ Yes ☐ No	Once a year we do a purge of the records center.	☑ Yes ☐ No	Yes but only for our records stored in offsite facilities.	☑ Yes ☐ No	For documents stored at the Records Center, a process is followed for preparing destruction notices, obtaining required authorizations, and determining the appropriate destruction method.	☑ Yes ☐ No	
	15	**How successful have you been when trying to locate archived records?** **Please elaborate as necessary.**	☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	All of our records in the records center are indexed by the departments that send the boxes. They seem to find what they need fairly quick, if it is in the records center.	☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	We have a high level of success in those managed through our RM program. Any issues are usually associated with retrievals not returned or records that were not transferred.	☐ Very Successful ☐ Somewhat Successful ☑ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful		☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	
Electronic Records (electronically stored as well as shared drives, e-mails, SharePoint sites, etc.)	16	**Who currently has the primary responsibility for the day-to-day management of electronic records in your company/organization?**	The creators and users of the information.	While the corporate records manager is responsible for the overall effectiveness of the RM program. Company policy details responsibilities for all users. Ultimately it is up to the employee to follow policy. IAM has the duty to educate the employee.	Individual employees have the primary responsibility for managing most unstructured electronic records. Structured content in major systems are managed by IT in conjunction with the line of business.		The departments have primary responsibility for all records within their department, and may have and use systems that store electronic records. The IT Department under the direction of the Chief Technology Officer provides the normal security, system backups and IT support for electronic systems.		retained at a department level at this time	
	17	**Do your Records Management Policies & Procedures address electronic records?** **Please elaborate as necessary.**	☑ Yes ☐ No	We manage all information per laws, rules, regulations and best business practices, regardless of format.	☑ Yes ☐ No	Our policy and practice cover records regardless of format.	☐ Yes ☑ No	The company's Record Retention and Disposal Standard defines records as including all forms of tangible information storage, including electronic media.	☑ Yes ☐ No	
	18	**Does your company store electronic information?** **If yes, what software product(s) does your company use for electronic information records management (e.g.. Email, share drives, etc)?** **Please elaborate as necessary.**	☑ Yes ☐ No	OpenText Content Server	☑ Yes ☐ No	We are currently implementing Filenet and Filenet Records Manager for storage and control of electronic records on a limited basis. Symantic's vault provides storage for email and other content from network drives.	☑ Yes ☐ No	Various electronic systems and programs are currently used to store information. Plan is to move the various document management systems into a long-term document management data repository. Documentum will be used where there is a strong business case.	☑ Yes ☐ No	Lotus Notes, documentum,numerous other off the shelf apps.
	19	**Do you use an off-site vendor to store/archive electronic records?** **If yes, what vendor do use utilize for storing off-site electronic records?** **Please elaborate as necessary.**	☐ Yes ☑ No		☐ Yes ☑ No	We utilize offsite storage for electronic data/content of systems but not necessarily those being managed for records retention.	☐ Yes ☑ No		☑ Yes NRC ☐ No	

Benchmarking Survey: Records Information Management

	#	Question	Company E	Company E Elaborations	Company F	Company F Elaborations	Company G	Company G Elaborations	Company H	Company H Elaborations
Records Management Program	1	**Where does Records Management report up to within your organization and is it a Centralized or Decentralized function?**	Director /Deputy Ethics and Compliance Officer Vice President/Chief Ethics and Compliance Officer	Our Records Management program is within the Information Governance section of the Ethics and Compliance business unit. Records Management is a centralized function, providing Corporate-wide governance and coordinating records management activities in the business units through a decentralized network of Information Stewards (Records Coordinators).	Records Management reports to the Facilities Director under the office of VP Safety and Corporate Services.	Records Management provides governance and centralized RM services for the entire company. Governance and policies are established in conjunction with the Corporate Compliance department but there is no direct or indirect reporting relationship with Corporate Compliance.	Executive VP & General Counsel, parent company VP & General Counsel We have a centralized Corporate Records Department providing guidance and tools to business units for the performance of records management activities. Nuclear Division has a records management program for Quality Assurance records at each location where records are retained.		Facilities Service Asst Treasurer, Asset Mgt Vice President & Treasure Sr. Vice President & CFO Chairman, President & CEO We have a centralized Records Management Program.	Maintain one centralized Records Management software database.
	2	**Does your company/organization have a formal Records Management program with documented polices, procedures and retention schedules? Please elaborate as necessary.**	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	Our Records Management program has one corporate Records Management policy with associated procedures. We have a single functionally-based retention schedule. The retention periods are based on business need and comprehensive legal citations.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	We have a formal written policy for the Preservation of Records. The Records Management department has written procedures for day to day tasks as well as maintaining the Records Retention Schedule and managing the destruction of records past their retention.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	Our parent company has a Records Management Program with written policies and procedures and three sets of Corporate retention schedules--Utility Company, Non-Utility Companies, and Holding Company.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	We have a formal Records Management Program. Sr. Records Management Specialist and one Records Keeper . Follow all policies, procedures and destruction schedule.
	3	**How does your company/organization measure the effectiveness, over time, of your Records Management Program?**	We plan to develop metrics to measure the effectiveness of its Records Management program in 2012.		Effectiveness is measured by internal and external audits of the Records Management Program.	A FERC audit was completed within the past 5 years. An internal audit was completed within the last 2 years to assess compliance with FERC requirements. In addition, several other internal audits have been completed in the past year. These audits did not pertain to RM directly but the subject matter overlapped with RM processes.	We are in the initial stages of performing a GAP Analysis for policies, procedures, and records management.		Yearly Benchmarking with vendor who provides service.	
	4	**How would you rate the effectiveness of your Records Management program? Please elaborate as necessary.**	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	Our Records Management Program is effective, but has identified improvements needed to make the Program very effective. A recent GARP assessment, conducted by an independent vendor, rated the Program at the mid-level in the maturity model rating for the eight GARP Principles. We are developing plans to address the areas requiring improvement.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	Although the Records Management department has provided training and guidance to raise awareness of the importance of proper records management practices in the business areas, the geographic dispersion of the service centers and power plants complicate the process. The Records Management department has begun to reach out to the outlying areas to raise records management awareness, but there is more work yet to do. We have two operating companies. We are still working toward records integration.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	We continue to improve our records management program through feedback from our customers in a quarterly survey on records storage.	☑ Very Effective ☐ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	Records Management is supported from all levels Sr, Team, Directors, Managers, and all business partners. Sr. Records Management Specialist attends meetings to educate users on the Records Management process. A very user friendly Records Management program.
	5	**How does your company/organization ensure that Records Management policies and procedures are being adhered to?**	We plan to develop compliance requirements in 2012, and will begin measuring adherence to these requirements in 2013.	We perform periodic compliance assessments to assess compliance by business areas with Records Management policy and procedures, as well as steps that may be taken by the business areas to assess their own compliance with RM policy and procedures.	The Corporate Compliance group monitors and provides guidance to the Records Management department to ensure that the policies and procedures are being followed throughout the company.		Our Internal Auditing & Compliance department has responsibility for ensuring adherence to company policies and procedures. We have a Managing Attorney and a Senior Records Analyst designated to administer the Records Management Program.	We know additional records management training will lead to better compliance.	Policies are reviewed annually, supported by In house Legal department, Auditing, Risk Management, Sr. Records Management Specialist and vendor supporting program.	
	6	**Do you believe that all levels in your company/organization understand that Records Management is a key component to risk management? Please elaborate as necessary.**	☐ Yes ☑ No	We implemented a Communication Plan and engages in frequent and routine educational opportunities to educate its employees on records management, including its relationship to risk management. We have recently increased updated and increased the frequency of records management training and communications using a variety of methods and channels in an effort to increase understanding of risk.	☐ Yes ☑ No	The Records Management department initiated a formal training program in 2010. Since the program is not mandated within the company, I believe that there is room for improvement in raising awareness about records management at all levels of the company.	☐ Yes ☑ No	The understanding of risk management in our company is aligned with the insurance function and not records management.	☑ Yes ☐ No	All levels throughout the organization along with the Risk Manager support the Sr. Records Management Specialist with ongoing communicate, education sessions that are provided to business partners.
Physical Records	7	**Where are your company Records stored (e.g. - local office, local department, central company location, off-site at a central repository)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ Local Office or Department ☑ Central Company Location ☑ Off-site Central Repository ☐ Other	Our company records are stored both at a local level within business units as well as a centralized location at our Corporate Records Center.	☑ Local Office or Department 20 ☑ Central Company Location 5 ☑ Off-site Central Repository 75 ☐ Other	Many records are retained in file cabinets in department work areas. Records Management maintains high-density filing for records that are frequently accessed. All other records are then sent to off-site storage where they are retained until the end of their life cycle.	☑ Local Office or Department ☐ Central Company Location ☑ Off-site Central Repository ☐ Other	Local Departments may store locally for a short period of time before scanning to an electronic recordkeeping application or sending to offsite storage. It would be a guess to identify the percentage associated with each storage method.	☑ Local Office or Department ☑ Central Company Location ☑ Off-site Central Repository ☐ Other	Mostly stored off site with vendor in various locations. Records also exist in file cabinets at all corporate offices, area work centers.
	8	**How are your physical records stored (e.g. - file cabinets, boxes, scanned and stored electronically)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other		☑ File Cabinets 20 ☑ Boxes 70 ☑ Scanned then Stored Electronically 10 ☐ Do Not Store Physical Records ☑ Other audio/video tapes 2 (boxed)	Even though we scan and store documents electronically, the enterprise as a whole is not agreeable to destroying the paper. Individual departments have agreed to destroy the paper after some period of retention following scanning, but this is not true throughout the entire company. Therefore in some cases we retain the paper as well as the electronic image.	☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	It would be a guess to identify the percentage associated with each storage method.	☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	Mostly stored off site with vendor in various locations. Records also exist in file cabinets at all corporate offices, area work centers.
	9	**If you are currently scanning / digital imaging physical records, what percent of your physical records are being scanned / digital imaged?**	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☐ Less than 10% ☐ Do Not Scan / Digital Image	Records are being scanned by several business units, but we do not rack the percentage of physical records being scanned.	☐ 100% ☐ Up to 75% ☐ Up to 50% ☑ Up to 25% ☐ Less than 10% ☐ Do Not Scan / Digital Image	We scan contracts, invoices, journals, customer service correspondence, procurement card statements, packing slips, diversity certificates and certificates of destruction.	☐ 100% ☐ Up to 75% ☑ Up to 50% ☐ Up to 25% ☐ Less than 10% ☐ Do Not Scan / Digital Image	Includes those records not scanned but created by a source system (SAP, Excel, Outlook) and uploaded to electronic storage.	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☑ Less than 10% ☐ Do Not Scan / Digital Image	There are various organizations through the company that have been imaging and scanning documents. Very positive feedback on the entire process. Sr. Records Management Specialist coordinates all scanning and imaging projects
	10	**What methods are used to track the location and disposition of physical records (in house software, off the shelf product/software, manual logs)? Please elaborate as necessary.**	☐ In-house Software ☑ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	We track the location and disposition of physical records by using an off-the-shelf product (OmniRIM database) at the Corporate Records Center and a custom-built application for the Nuclear Generating Station records.	☑ In-house Software ☑ Off the Shelf Product/Software ☑ Manual Logs ☐ Other	We utilize several different software packages to track the physical records. This is due to the fact that the software systems were not integrated following a company merger. We also utilize the offsite vendor's software system to track location of boxes and to request delivery of boxes from the offsite storage. These systems are then supplemented by manual processes, primarily in Excel.	☐ In-house Software ☑ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	Accutrac software is used to track the location and disposition of records stored at our Corporate Records Center.	☐ In-house Software ☑ Off the Shelf Product/Software ☐ Manual Logs ☐ Other	Daily, weekly, monthly reports are monitored to ensure that Records Management program is being followed and records are secure.

Benchmarking Survey: Records Information Management

	#	Question	Company E	Company E Elaborations	Company F	Company F Elaborations	Company G	Company G Elaborations	Company H	Company H Elaborations
Physical Records	11	**Do you have a business unit indexing scheme to record the location, type and retention period for company records? Please elaborate as necessary.**	☐ Location ☐ Type of Record ☐ Retention Period ☐ Other	We do not have a business unit indexing scheme at this time. We are developing folder structures in the enterprise records management system (eDMRM, which is built on the OpenText product) for organizing electronic records. The folder structure is based on the Retention Schedule.	☐ Location ☐ Type of Record ☐ Retention Period ☑ Other	One company's records use a record series identifier that indexes records by functional area. Another company's records use a retention code that is associated to a department number, which is difficult to maintain. The Records Management team is in the process of assisting departments with developing their file plans. A record series will be assigned to the records in the file plan. Our objective is to load this information into the Retention Manager software product we recently purchased.	☐ Location ☐ Type of Record ☐ Retention Period ☐ Other	No, we don't have a business unit indexing scheme. Our retention schedules provide the location, type and retention period for company records. This information is used to complete a Records Transmittal form when storing records in our Corporate Records Center.	☑ Location ☑ Type of Record ☑ Retention Period ☐ Other	Record Center staff works with vendors software to captured specific data, about the box of records stored e.g. owner of record, department, record type, destruction, content and the like information is entered record system.
	12	**Does a Records Management criteria exist that gives guidelines/mandates on how long a physical record can be retained within a local office/department prior to being sent to a central repository or off-site storage for archiving? Please elaborate as necessary.**	☐ Yes ☑ No	Each business unit decides how long physical records are retained within the business unit.	☑ Yes ☐ No	One company's Retention Schedule provides guidelines for on site and off site retention but the other company's Retention Schedule only lists total retention regardless of location. On-site storage space is limited.	☑ Yes ☐ No	The Records Management criteria for local storage is provided on the record retention schedules as a best business practice or in records management procedures for electronic recordkeeping.	☑ Yes ☐ No	PER DTE/FERC Regulations/M.G.L.C.93H
	13	**Do you use an off-site vendor to store/archive physical records or do you store/archive your physical records on company property with company personnel? Please elaborate as necessary.**	☐ Yes ☐ No	We store physical records on company property with company personnel at its Corporate Records Center.	☑ Yes ☐ No	One company's records were housed at Underground Vaults & Storage since 2005. After the merger the other company's records were also sent offsite and all records currently reside at Underground Vaults & Storage.	☐ Yes ☑ No	Our company has a Corporate Records Center with company personnel. Our facility provides hardcopy and special media storage environments that meet industry requirements.	☑ Yes ☐ No	We use an outside vendor for storage of Records Management Paper and for Electronic Data Protection. Destruction Policy & Procedures are followed.
	14	**Do you have an active disposition / destruction process for records that have gone beyond their retention schedule? Please elaborate as necessary.**	☑ Yes ☐ No	We have procedures that provide the guidance for records disposition. The processes govern the roles of the business units, Records Management group, and Corporate Records Center in the disposition process.	☑ Yes ☐ No	The Records Management department has developed formal procedures for both scheduled and unscheduled destruction processes for physical records. Destructions are scheduled twice each year. Unscheduled destructions occur as required.	☑ Yes ☐ No	We have an annual notification to all Company employees that provides links to procedures for instructions on record disposition.	☑ Yes ☐ No	
	15	**How successful have you been when trying to locate archived records? Please elaborate as necessary.**	☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	Our Corporate Records Center is very successful in locating and retrieving records in a timely manner.	☐ Very Successful ☑ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	The success of a search is determined by the quality of the information used to inventory the records when they were first archived as well as the ability of the requester to articulate the applicable search terms.	☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	If the record has been indexed appropriately before sending to the archives, it has been located.	☑ Very Successful ☐ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	We use an outside vendor and the services is excellent.
Electronic Records (electronically stored as well as shared drives, e-malls, SharePoint sites, etc.)	16	**Who currently has the primary responsibility for the day-to-day management of electronic records in your company/organization?**	Day-to-day management of electronic records is decentralized and managed within the business units.		We think of electronic data as residing in one of three areas: email, applications/systems, or file shares. The IT department manages electronic records in email. For application data IT has recently begun to monitor the application databases. They work closely with the business owner of the application to ensure that databases are managed according to the Records Retention Schedule. The Records Management department provides guidance to the business unit and IT for the management of application data. At this time, data residing on network file shares is managed solely by the business owners. We intend to begin addressing retention of data on file shares in the near future.		Information Management		NIS is the sole owner of this process. Sr. Records Management Specialist teams with business partners and NIS on all new records/databases that have been imaged and scanned and need to be loaded onto a server. Defined procedures are in place and followed.	
	17	**Do your Records Management Policies & Procedures address electronic records? Please elaborate as necessary.**	☑ Yes ☐ No		☑ Yes ☐ No	The Policy for the Preservation of Records addresses records regardless of the medium in which they exist. However the Records Management department does not have the necessary systems in place to manage electronic records at this time.	☑ Yes ☐ No	Multiple policies addressing electronic record storage, electronic mail, and electronic recordkeeping systems.	☑ Yes ☐ No	
	18	**Does your company store electronic information? If yes, what software product(s) does your company use for electronic information records management (e.g.. Email, share drives, etc)? Please elaborate as necessary.**	☑ Yes ☐ No	Yes. We use OpenText for electronic records management.	☑ Yes ☐ No	IT uses Symantec's Enterprise Vault to manage email records. Application data is managed jointly by IT and the business unit. Electronic records belonging to individual departments are kept in shared folders on the network. These records are managed by the departments themselves.	☑ Yes ☐ No	Documentum and SAP	☑ Yes ☐ No	Electronic records (Emails, data stored on shared drives etc) are backed up to tape and then stored off Site Iron Mountain. This is the only vendor that we use for off-site storage of electronic. The destruction of electronic records is performed by Iron Mountain and we receive a certificate of destruction (Iron Mountain incinerates the records).
	19	**Do you use an off-site vendor to store/archive electronic records? If yes, what vendor do use utilize for storing off-site electronic records? Please elaborate as necessary.**	☐ Yes ☑ No		☐ Yes ☑ No		☐ Yes ☑ No	Portable media containing electronic records are stored at our Corporate Records Center under the required environmental storage conditions.	☑ Yes Iron Mountain ☐ No	Iron Mountain is the vendor for Data Protection and the Records Management Program.

Benchmarking Survey: Records Information Management

	#	Question	Company I	Company I Elaborations	Company J	Company J Elaborations
Records Management Program	1	**Where does Records Management report up to within your organization and is it a Centralized or Decentralized function?**	Records Manager reports up to the General Counsel. There is also a team, reporting up to the Vice President of Facilities, that supports transfer of records to and from outside storage vendor.	Decentralized. Business areas assign employees as Departmental Records Coordinators (DRCs). Records Manager provides advice and training, and Steering Committee, comprising representatives of different business areas, addresses records issues of significant impact to the company.	VP Regulatory Policy & Strategy SVP Regulatory &Energy Policy & General Counsel. We have a centralized Corporate Department that provides governance and the individual business units have a decentralized approach.	Job assignment for individuals within the organization - Decentralized Records Managers and Records Administrators
	2	**Does your company/organization have a formal Records Management program with documented polices, procedures and retention schedules? Please elaborate as necessary.**	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	Yes. Revised records management policy and records retention schedule were published in late 2011. Some established procedures with others expected to be added over time.	☑ Documented Policies ☑ Documented Procedures ☑ Documented Retention Schedules ☐ Other	Yes. We have a Records Management Program Manager, written procedures and policies and a 'big bucket' Records Retention Schedule.
	3	**How does your company/organization measure the effectiveness, over time, of your Records Management Program?**	Revised program recently released to company - too early to measure effectiveness at this time but we plan to do so in the future.		We do not currently measure the effectiveness of the Records Management but intends to begin doing so.	
	4	**How would you rate the effectiveness of your Records Management program? Please elaborate as necessary.**	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	New program created and implemented with the objective of maximizing effectiveness, but it is too early to rate at this time.	☐ Very Effective ☑ Somewhat Effective ☐ Not Effective ☐ N/A - We do not have a program	We have been actively improving the effectiveness of our records management program but have not yet begun routinely measuring the effectiveness of the Records Management program.
	5	**How does your company/organization ensure that Records Management policies and procedures are being adhered to?**	Self-enforcement w/in lines of business, facilitated by DRCs. RM policies & procedures are contained in a Corporate Instruction, which is subject to auditing by our Audit Department. Coordinators will meet periodically w/ Records Manager, & Steering Committee will also meet periodically.		We have designated personnel within the business unit that run the records management program. We know there is room for improvement with the day to day records management process and we are addressing.	
	6	**Do you believe that all levels in your company/organization understand that Records Management is a key component to risk management? Please elaborate as necessary.**	☐ Yes ☑ No	Sensitivity to records management as a component of risk management varies throughout the organization. We plan to include this issue in training and communications.	☐ Yes ☑ No	The understanding of risk management varies throughout the organization. Our intent is to reinforce this importance by addressing issues, creating easier to understand Records Management job aides, and properly communicating Records Management information throughout the entire organization.
Physical Records	7	**Where are your company Records stored (e.g. - local office, local department, central company location, off-site at a central repository)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ Local Office or Department ☐ Central Company Location ☑ Off-site Central Repository ☐ Other		☑ Local Office or Department 25% ☐ Central Company Location ☑ Off-site Central Repository 75% ☐ Other	Local Office - Depends on storage capability or time retention Off-site - When storage capabilities are exceeded at the local office
	8	**How are your physical records stored (e.g. - file cabinets, boxes, scanned and stored electronically)? If known or estimable, please indicate the percentage associated with each method in the boxes to the right of each option. Please elaborate as necessary.**	☑ File Cabinets ☑ Boxes ☑ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	Varies by business area.	☑ File Cabinets 25% ☑ Boxes 75% ☐ Scanned then Stored Electronically ☐ Do Not Store Physical Records ☐ Other	We use file cabinets and boxes. It is not routine for records to be digitally imaged/scanned and stored electronically.
	9	**If you are currently scanning / digital imaging physical records, what percent of your physical records are being scanned / digital imaged?**	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☐ Less than 10% ☐ Do Not Scan / Digital Image	Unknown at this time.	☐ 100% ☐ Up to 75% ☐ Up to 50% ☐ Up to 25% ☐ Less than 10% ☑ Do Not Scan / Digital Image	We do not routinely scan or digital image physical records.
	10	**What methods are used to track the location and disposition of physical records (in house software, off the shelf product/software, manual logs)? Please elaborate as necessary.**	☐ In-house Software ☐ Off the Shelf Product/Software ☐ Manual Logs ☑ Other	We track the location of records stored with offsite storage vendor, using vendor's software. Tracking on onsite records varies by business area.	☐ In-house Software ☐ Off the Shelf Product/Software ☑ Manual Logs ☐ Other	We track the location and disposition of physical records that are stored off-site, using the off-site vendor's software. We do not have a common company log of where all on-site records can be found.

Benchmarking Survey: Records Information Management

	#	Question	Company I	Company I Elaborations	Company J	Company J Elaborations
Physical Records	11	**Do you have a business unit indexing scheme to record the location, type and retention period for company records?** **Please elaborate as necessary.**	☐ Location ☐ Type of Record ☐ Retention Period ☑ Other	Varies by business area.	☐ Location ☐ Type of Record ☐ Retention Period ☑ Other See comments	We do not have a Business Unit wide indexing scheme. Manual / electronic logs exist with in departments. We do have an indexing scheme for our records stored at our off-site vendor location.
	12	**Does a Records Management criteria exist that gives guidelines/mandates on how long a physical record can be retained within a local office/department prior to being sent to a central repository or off-site storage for archiving?** **Please elaborate as necessary.**	☐ Yes ☑ No	Decisions about where to store active records remain with individual business areas.	☐ Yes ☑ No	We do not have a guideline or a mandate.
	13	**Do you use an off-site vendor to store/archive physical records or do you store/archive your physical records on company property with company personnel?** **Please elaborate as necessary.**	☑ Yes Iron Mountain ☑ No	Varies by business area.	☑ Yes See Comments ☐ No	We use an off-site vendor to store/archive physical records. We do not use a central storage facility, within the company, to store physical records.
	14	**Do you have an active disposition / destruction process for records that have gone beyond their retention schedule?** **Please elaborate as necessary.**	☐ Yes ☐ No	Not clear what this question means. Please feel free to contact me to discuss in greater detail.	☑ Yes ☐ No	We have procedures that provide this guidance but they are not uniformly adhered to across the Company.
	15	**How successful have you been when trying to locate archived records?** **Please elaborate as necessary.**	☐ Very Successful ☑ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful		☐ Very Successful ☑ Somewhat Successful ☐ Neutral ☐ Somewhat Unsuccessful ☐ Very Unsuccessful	Somewhat successful and when successful it typically take longer than expected.
Electronic Records (electronically stored as well as shared drives, e-mails, SharePoint sites, etc.)	16	**Who currently has the primary responsibility for the day-to-day management of electronic records in your company/organization?**	Individual employees and business areas, as well as IT. Also, every electronic database has an assigned owner.		We do not have a centralized group that is responsible for managing electronic records. Similar to physical records, electronic records are managed by individuals within the company's departments to ensure compliance with the record retention schedule. However, structured computerized systems data is contained within the system that originated the data and are managed by IT .	
	17	**Do your Records Management Policies & Procedures address electronic records?** **Please elaborate as necessary.**	☑ Yes ☐ No	Policy and retention schedule are media-neutral and apply to electronically stored as well as hard copy records.	☑ Yes ☐ No	Yes, our current Records Management Policy and Procedures cover all records, regardless of medium. But we do not have the infrastructure in place to support standardized electronic records and information management.
	18	**Does your company store electronic information?** **If yes, what software product(s) does your company use for electronic information records management (e.g.. Email, share drives, etc)?** **Please elaborate as necessary.**	☑ Yes ☐ No		☐ Yes ☑ No	No. See our response to question 16.
	19	**Do you use an off-site vendor to store/archive electronic records?** **If yes, what vendor do use utilize for storing off-site electronic records?** **Please elaborate as necessary.**	☑ Yes Iron Mountain ☐ No		☐ Yes ☑ No	No. See our response to question 16.

PACIFIC GAS AND ELECTRIC COMPANY

INTRODUCTION

PACIFIC GAS AND ELECTRIC COMPANY
INTRODUCTION

The Consumer Protection and Safety Division (CPSD) consultants, Paul Duller and Alison North, assessed PG&E's historic records practices using recently developed Generally Accepted Records Principles (GARP) and the Information Governance Maturity Model, supplemented by the National Transportation Safety Board's January 3, 2011 recommendations regarding "traceable, verifiable and complete" pipeline records. They conclude that virtually all aspects of PG&E's records management and retention practices at the time of the San Bruno accident were "substandard" when measured using these assessment tools, and that PG&E's records management and retention practices have been substandard back as far as 1955, if not earlier. In a separate report, CPSD consultant Margaret Felts claims that specific records management deficiencies impacted how PG&E used records, contributed to the San Bruno accident, and rendered PG&E's Transmission Integrity Management program an "exercise in futility."

The Duller/North Report identifies legitimate areas of present-day records management concern, concerns that we share and are addressing. However, many of their allegations are based on application of new, subjective, and untested assessment methodologies to more than 50 years of past records management practices. The result is a series of hindsight judgments, lacking real world perspective and historical context.

For example, Dr. Duller and Ms. North make no effort to benchmark PG&E's past records practices alongside those of other pipeline operators. They take no account of changes in records management methods and technologies. They largely ignore the regulatory context in which PG&E made past decisions about records, including provisions governing records retention. Where the Duller/North Report legitimately identifies areas of present-day records management concern, it draws broad and unsupported inferences from them, turning an existing records management challenge into 50 years of alleged violations. Reading the Duller/North Report, the Commission might conclude its staff had never once in the past 50 years conducted a safety audit of PG&E's gas records or transmission facilities, which is not the case at all.

Ms. Felts' report strains to place perceived records gaps and mistakes at the heart of the San Bruno accident. But the San Bruno accident was not caused by

missing, inaccurate, or incomplete records. As set forth in the testimony of Robert Caligiuri, Ph.D., an expert metallurgist, in the San Bruno OII 12-01-007, the pipe failure resulted from a sequence of three things, all of which together led to the September 9, 2010 rupture: (1) a missing interior weld; (2) a ductile tear likely caused by a hydro test to about 500 psig; and (3) fatigue cracking that grew from the ductile tear slowly over time, reducing the pressure that could trigger a failure at that location to about 386 psig – below the 400 psig Maximum Allowable Operating Pressure (MAOP) of Line 132. PG&E did not know about these circumstances; if the Company had known it would have addressed them. The facts are that no operator would likely have had records of a kind that would have prevented this terrible accident. Similar to the Duller/North Report, the Felts Report draws inaccurate factual conclusions and ignores the industry and regulatory context in which PG&E and other operators made decisions about records in 1956 and in the years since. Ms. Felts (who acknowledges having a limited gas transmission integrity management background)[1] exaggerates the extent to which missing, incomplete or inaccurate records impacted PG&E's past pipeline safety and integrity management activities.

PG&E's response to the Duller/North and Felts reports divides into five chapters. Chapter 1 addresses allegations regarding past records management practices. It explains why the CPSD's new and highly subjective assessment methodologies lead it to draw many conclusions and inferences unsupported by fact. PG&E also acknowledges in this section areas in which it needs to improve its asset knowledge and records management practices, and outlines the steps PG&E has initiated to improve.

Chapter 2 discusses the allegations regarding records retention practices. The Duller/North Report unfairly picks and chooses records retention standards and practices to criticize, leading to inaccurate and unbalanced findings. Chapter 2 brings forward facts Dr. Duller and Ms. North overlook, corrects factual mistakes,

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[1] Responding to a PG&E request for information about her qualifications, CPSD wrote that "Ms. Felts has extensive experience assessing the integrity of underground lines that carry liquids and above ground lines that carry gases, but she has not produced any reports, assessments or other written products about integrity management." (CPSD Response to PG&E Data Request 4-Q 29. (Ex. Intro-1).)

and introduces much needed regulatory context to the discussion of PG&E's historic records retention standards, guidelines and practices.

Chapter 3 responds to allegations about how PG&E has historically used its gas transmission pipeline records. It helps to dispel misunderstandings in both the Duller/North and Felts reports about the role of records in making gas engineering decisions.

Chapter 4 responds to allegations regarding the San Bruno accident and Line 132.

Finally, Chapter 5 addresses allegations related to data request responses and document collection since the San Bruno accident.

Below is a table listing each of CPSD's alleged violations, and the locations in this response where we respond to those allegations.

TABLE 0-1
PACIFIC GAS AND ELECTRIC COMPANY
ALLEGED VIOLATIONS AND PG&E'S RESPONSE

Violation Number[2]	Summary Description of Alleged Violation	Regulation/ Standard	Time Period of Violation[3]	PG&E Response
Duller/ North A1	PG&E's Gas Transmission Division lacked the necessary accurate and locatable records essential for safe pipeline operation, due to sub-standard records management practices	ASME B31.8; Part 192.709; GO 112, 112A and 112B (Section 107); PUC Code § 451	1955-2010	Ch. 1; Ch. 2 & Expert Report of Maura Dunn; Ch. 1.C; 2.A.; 3.A; 3.C.
Duller/ North B1	PG&E's minimal compliance with some of its own retention policies regarding leak survey maps violates other requirements.	Part 192.709; PUC Code § 451	4/2010-9/2010	Expert Report of Maura Dunn; Ch. 2.A.
Duller/ North B2	PG&E's minimal compliance with some of its own line patrol retention policies violates other requirements	ASME B31.8; Part 192.709; GO 112, 112A and 112B (Section 107); § 451	1964-2010	Ch. 1 & Ch. 2 & Expert Report of Maura Dunn
Duller/ North B3	PG&E's minimal compliance with some of its own line inspection report retention requirements violates other requirements	ASME B31.8; Part 192.709; § 451	1994-2010	Ch. 1 & Ch. 2 & ; and Expert Report of Maura Dunn

2 The violation numbers relate to the identified violations in the Felts Supplement, numbered 1-27, and the Duller/North Supplement, numbered A1, B1-6, C1-3.

3 For those alleged violations that contain various time periods depending on the cited regulation, the table includes the longest time period.

Violation Number[2]	Summary Description of Alleged Violation	Regulation/ Standard	Time Period of Violation[3]	PG&E Response
Duller/ North B4	PG&E's minimal compliance with some of its gas high pressure test record retention policies violates other requirements	ASME B31.8; Part 192.709; § 451	1994-2010	Ch. 1 & Ch. 2 & Expert Report of Maura Dunn
Duller/ North B5	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 violates other requirements	ASME B31.8; Part 192.709; GO 112, 112A and 112B (Section 107); PUC Code § 451	1964-2010	Ch. 1 & Ch. 2 & Expert Report of Maura Dunn
Duller/ North B6	At all times between 1955 and 2010, PG&E was aware of the requirement to retain and maintain certain documents for various lengths of time but failed to implement their practices fully	ASME B31.8; Part 192.13(c); GO 112, 112A and 112B (Section 107); PUC Code § 451	1955-2010	Ch. 1 & Ch. 2 & Expert Report of Maura Dunn
Duller/ North C1	In 2007, PG&E was informed that in 1995 it selected the wrong year as the upper limit for its GPRP (1947 rather than 1948) and for assessing the excavation threat to PG&E's gas transmission pipelines…	PUC Code § 451	1995-2010	Ch. 3
Duller/ North C2	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	B31.8; § 451	1992-2010	Ch. 3
Duller/ North C3	PG&E failed to maintain a definitive, complete and readily accessible database of all gas leaks for its pipeline system as it failed to migrate all historical leak information from system to system…	GO 112, 112A and 112B (Section 107); B31.8; 192.709; § 451	1955-2010	Ch. 1 & Ch. 3
Felts 1	No records for salvaged pipe installed into Segment 180	PUC Code § 451; Cal. Pub. Util. Act, Art. II, § 13(b)	Pre-1951-2010	Ch. 4
Felts 2	Failure to create/retain construction records for 1956 project	PUC Code § 451	1956-2010	Ch. 1 & Ch. 4
Felts 3	Failure to retain pressure test records for L-132, Segment 180	PUC Code § 451; ASME B31.8; GO 112, 112A and 112B (Section 107)	1955-2010	Ch. 1 & Ch. 4

Violation Number[2]	Summary Description of Alleged Violation	Regulation/ Standard	Time Period of Violation[3]	PG&E Response
Felts 4	Lost underlying records to support MAOP of 390 on Segment 180	PUC Code § 451; ASME B31.8	1977-2010	Ch. 1 & Ch. 4
Felts 5	Failure to follow procedures to create clearance records	PUC Code § 451	2010	Ch. 4
Felts 6	Out-of-date operations and maintenance instructions at Milpitas Terminal	§ 451	1991-2010	Ch. 4
Felts 7	Out-of-date drawing and diagrams of the Milpitas Terminal	PUC Code § 451; PG&E internal policies	2008-2010	Ch. 4
Felts 8	No back-up software at the Milpitas Terminal	PUC Code § 451	1991-2010	Ch. 4
Felts 9	Unsafe design of Supervisory Control and Data Acquisition System	PUC Code § 451	2008-2010	Ch. 44
Felts 10	Emergency response plans too difficult to use	PUC Code § 451	4/2010-9/2010	Ch. 4
Felts 11	Operated L-132 in excess of 390 MAOP (1 day each year)	PUC Code § 451	2003-2010	Ch. 4
Felts 12	Failure to attempt to preserve video recordings that PG&E believed was on Brentwood Camera 6	Executive Director Preservation Directive; ; Commission Resolution L-403	2010-2012	Ch. 5
Felts 13	PG&E's contradictory data responses regarding recorded Brentwood Camera 6 video	Rules of Practice and Procedure Rule 1.1	2011 and 2012	Ch. 5
Felts 14	PG&E's data responses did not identify all of the people in Milpitas handling the pressure problem on September 9, 2010	Rules of Practice and Procedure Rule 1.1	10/2011 and 12/17/2011	Ch. 5
Felts 15	Loss of the 2010 agreement controlling access to audio recordings	PUC Code § 451; Exec. Director Preservation Directive; CPUC Resolution L-403	2010-2012	Ch. 5
Felts 16	Job files missing and disorganized	PUC Code § 451; ASME B31.8; PG&E internal policies	1987-2010	Ch. 1 and Ch. 3
Felts 17	Pipeline history records missing	PUC Code § 451; ASME B31.8; PG&E internal policies	1987-2010	Ch. 1 & Ch. 2
Felts 18	Design and pressure test records missing	PUC Code § 451; Pub. Util. Act, Art. II, § 13(b); ASME B31.8; GO 112, 112A and 112B (Section 107); PG&E internal policies	1930-2011	Ch. 1 & Ch. 3

Violation Number[2]	Summary Description of Alleged Violation	Regulation/ Standard	Time Period of Violation[3]	PG&E Response
Felts 19	Weld maps and weld inspection records missing or incomplete	Part 192.241; Part 192.243; PUC Code § 451; Pub. Util. Act, Art. II., § 13(b); ASME B31.8; GO 112, 112A and 112B (Section 107)	1930-2011	Ch. 1 & Ch. 3
Felts 20	Operating pressure records missing, incomplete or inaccessible	PUC Code § 451; § Pub. Util. Act, Art. II, 13(b); § ASME B31.8; GO 112, 112A and 112B (Section 107); PG&E internal policies	1930-2010	Ch. ! & 3
Felts 21	Pre-1970 leak records missing, incomplete and inaccessible	Pub. Util Code § 451; Pub. Util Act, Art. II, § 13(b); ASME B31.8; GO 112, 112A and 112B (Section 107)	1930-2010	Ch. 1 & Ch. 3
Felts 22	Post-1970 leak records incomplete and inaccessible	PUC Code § 451; ASME B31.8; GO 112, 112A and 112B (Section 107); PG&E internal policies	1955-2010	Ch. 1 & Ch. 3
Felts 23	Records to track salvaged and reused pipe missing	PUC Code § 451; PG&E internal policies	1954-2010	Ch. 3
Felts 24	Bad data in pipeline survey sheets and the Geographic Information System	PUC Code § 451; PG&E internal policies	1974-2010	Ch. 3
Felts 25	Use of an integrity management risk model that uses inaccurate data	PUC Code § 451	2004-2010	Ch. 3
Felts 26	1988 weld failure – no failure report	PUC Code § 451	1988-2010	Ch. 3
Felts 27	1963 weld failure – no failure report	PUC Code § 451	1963-2010	Ch. 3

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PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

RECORDS MANAGEMENT REQUIREMENTS AND ASSESSMENT METHODOLOGY

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CHAPTER 1
RECORDS MANAGEMENT REQUIREMENTS AND ASSESSMENT METHODOLOGY

In the Duller/North Supplement, CPSD alleges what it terms "general records management violations." It explains its view that for a long time:

> PG&E's Gas Transmission Division lacked the necessary accurate and locatable records essential for safe pipeline operation, due to substandard records management practices.[1] 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 Divisions. This led to inefficient and unsafe work practices.[2]

CPSD concludes PG&E violated ASME Standard B31.8 (from 1955 to September 2010); 49 CFR Section 192.709 (from August 1970 to September 2010); Section 107 of General Orders 112, 112A and 112B (from 1961 to 1970); and California Public Utilities Code Section 451 (1955 to September 2010). For supporting analysis, CPSD refers to Sections 6 and 7 of the Duller/North Report.

PG&E recognizes that it has not located some historic pipeline records, including strength test reports that should have been retained. And, it recognizes that its recent records management practices have come up short. Indeed, the CPSD's report (Sections 6 and 7) leans heavily on preliminary and draft assessments undertaken by a PG&E-commissioned consultant. PG&E has already initiated many records management improvements aimed at addressing its records management and asset knowledge weaknesses.

However, and as explained in greater detail in this Chapter, the extraordinary breadth and scope of the alleged violations lack support. The Duller/North Report applies subjective and comparatively new measures – eight Generally Accepted Record-keeping Principles (GARP) and the Information Governance Maturity

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[1] The CPSD asserts that it has based its assessment and evaluation of PG&E's records management activities on GARP principles and the Information Model defined by ARMA International. (Felts Supplement, Exhibit 2, PG&E Violations, n.1.)

[2] Duller/North Supplement, Violation A1 at 2.

Model's five levels of maturity – to assess historic records management practices.[3] Many of the historic practices now judged as deficient using the GARP assessment standards, predate the assessment standards themselves, predate gas pipeline safety regulation, predate modern records management technologies, and predate the National Transportation Safety Board (NTSB's) "traceable, verifiable and complete" recommendations.[4] The Duller/North analysis attempts to hold PG&E to an aspirational standard of records management excellence (one which only just now is gaining recognition in the gas industry). The report lacks context – an effort to evaluate PG&E alongside its peers across different eras of information management technical and regulatory change. Industry benchmarking data shows that many other gas operators share (and have historically shared) similar records management and asset knowledge challenges.

Chapter 1 divides into five parts (A-E). In Part A, Cesar de Leon, the former Director of the Office of Pipeline Safety, U.S. Department of Transportation, surveys historic industry guidelines and regulatory requirements, particularly as they bear on records management. This discussion aids in evaluating CPSD's allegations. Mr. De Leon explains that gas pipeline regulators have historically exempted existing facilities from regulatory initiatives. In the past, regulators accommodated records gaps known to exist in the industry, and generally placed gas transmission safety audit and enforcement emphasis on subjects other than records management.

Part B addresses the NTSB's "traceable, verifiable and complete" recommendation that Dr. Duller and Ms. North marshal to judge PG&E's historic records management practices. Where CPSD's witnesses take an academic approach – going so far as to attempt to align the NTSB's "traceable, verifiable and complete" standard with modern GARP records management principles – PG&E offers a practical and contextual one. In Part B, James Howe, a professional engineer with more than 30 years of experience in the natural gas pipeline industry, evaluates the "traceable, verifiable and complete" standard from the perspective of a gas industry professional. He explains how the standard imposes a new and difficult

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[3] Throughout their report, Dr. Duller and Ms. North at times mistakenly refer to the "Information Governance Maturity Model" as the "Information Maturity Model."

[4] The Duller/North Report also refers to ISO 15489-1:2001, but indicates that it was not used "directly in the measurement of PG&E's records management activities." (Duller/North Report at 3:14-15.)

to attain threshold when applied to historic gas pipeline records. The industry today acknowledges the need to work to achieve traceable, verifiable, and complete recordkeeping. But that standard is a new and evolving one, ill-suited to the task of an historical assessment of the kind undertaken in the Duller/North Report.

In Part C, Maura Dunn, a records management expert with significant experience advising large public and private entities, including public utilities, explains why Duller and North's use of GARP and Information Maturity Model benchmarking methodologies are incompatible with a backward-looking penalty investigation. Maura Dunn explains that Duller and North's chosen methodologies are subjective, untested, and ahistorical. The records management and asset knowledge technology did not exist until recently for any utility with operations as old and diverse as PG&E's to incorporate GARP principles. Ms. Dunn explains further that many of the deficiencies CPSD perceives to exist in PG&E's current records management practices, particularly with respect to job files, were not deficiencies at all when examined in light of business needs in the era in which the practices emerged.

Part D addresses the actions PG&E has taken since the San Bruno accident to improve its asset knowledge and records management practices. Sumeet Singh, Senior Director of Asset Knowledge Management in PG&E's Gas Operations Department, details efforts that include a huge and on-going MAOP Validation and Records Verification project. He also describes PG&E's Gas Transmission Asset Management Project (GTAM) which, when completed, will integrate numerous existing data management tools into three coordinated document management systems (SAP, GIS, and Documentum). PG&E has begun to construct a records management organization that will renew and sustain a records management focus at the corporate enterprise level and within the gas transmission organization.

Finally, in Part E, Ms. Dunn undertakes a preliminary evaluation of PG&E's forward-looking records improvements. At both an enterprise level and within the gas organization PG&E has set itself on the right course to achieve significant asset knowledge and records management improvements in the coming years.

CHAPTER 1A
PIPELINE SAFETY REGULATORY OVERVIEW

Cesar de Leon is a pipeline safety engineering consultant with over 40 years' experience in the industry, the federal government, and consulting. Mr. De Leon worked for the Office of Pipeline Safety (OPS) (now PHMSA) for approximately 23 years, including 5 years as head of OPS and 5 years as Deputy of the Program, ending as Deputy Associate Administrator for Pipeline Safety. For the past 15 years, he has been a consultant with PanAm Pipeline Technology, Inc., providing pipeline safety engineering services regarding code compliance and safety practices for design, construction, operation, and maintenance of gathering, gas transmission, gas distribution, and petroleum pipelines under federal, state, and industry standards. Mr. De Leon's curriculum vitae is attached as Appendix C to this testimony.

Mr. De Leon previously sponsored Parts C and E of Chapter 1 contained in PG&E's June 20, 2011 submission in this proceeding. That chapter addresses numerous pipeline regulatory requirements. Much of that discussion anticipates the regulatory violations raised by the CPSD's expert reports, and thus is relevant here. Mr. De Leon incorporates into Part A of this Chapter those portions of Chapter 1 (Parts C and E) from the June 20, 2011 filing that he had previously sponsored. Sections 1C and 1E are reproduced as Appendices A and B to this submission.

Mr. De Leon expands on his prior testimony in a few respects:

First, my testimony in Section C.2 of PG&E's June 20, 2011 filing began as follows:

> Federal pipeline law also partially exempts existing pipeline facilities from its reach. As a consequence, and as discussed below, certain federal recordkeeping requirements promulgated in 1970, and amendments thereafter, did not extend to existing facilities.

I stand behind this statement. In doing so, I note that in May of this year, PHMSA confirmed in an advisory bulletin that it is reconsidering the "grandfather" provision – a key provision of 49 C.F.R. Part 192 that gives effect to Congress' mandate regarding partial exemption of existing facilities in the Natural Gas Pipeline Safety Act of 1968. (Advisory Bulletin, ADB-12-06, 77 Fed. Reg. 26822-24 (May 7, 2012) (Ex. 1-1).) PHMSA's May 2012 advisory bulletin

described the effect of the grandfather clause as it applies to recordkeeping in terms similar to those used by me. PHMSA wrote in part:

> The third method, often referred to as the "grandfather clause," allows pipelines that had safely operated prior to the pipeline safety MAOP regulations to continue to operate under similar conditions *without retroactively applying recordkeeping requirements or requiring pressure tests.*

(Ex. 1-1 (emphasis added).)

This is a clear and present day statement by PHMSA confirming my prior statement that certain "recordkeeping requirements promulgated in 1970, and amendments thereafter, did not extend to existing facilities."

Second, and having reviewed the Duller/North Report, I question the CPSD's reliance on GARP principles and the Information Governance Maturity Model as a basis for assessing PG&E's past recordkeeping practices in an administrative penalty proceeding. Prior to reading the Duller/North Report, I had never heard of ARMA International's GARP Principles or the Information Governance Maturity Model. Neither the GARP principles nor the Information Governance Maturity Model has ever, to the best of my knowledge, been used by PHMSA when evaluating an operator's gas pipeline safety or recordkeeping practices. I do not believe that they have ever been incorporated into any PHMSA regulatory standard – nor could they without review and approval by the Office of Management and Budget under the Paperwork Reduction Act (P.L. 104-13) as required for all recordkeeping requirements. (Pub. L. 104-13, 109 Stat. 163 (1995).) As a former federal regulator, I cannot conceive of a situation where PHMSA or any other pipeline safety regulator would evaluate decades old historical recordkeeping practices of an operator within its jurisdiction based on GARP Principles or the Information Governance Maturity Model, much less do so in the context of a penalty proceeding.

Third, both the Duller/North Report and Felts Supplement assert numerous "violations" of "ASME Standard B31.8" over periods of time that span from 1955 to 2010. Using ASME Standard B31.8 as an independent basis for asserting a regulatory violation does not make any sense. When the Commission adopted GO 112 in December 1960, effective July 1961, it made clear that its provisions (which incorporated ASME) did not apply insofar as the initial design,

construction and testing of pipe was concerned. (GO 112, § 104.3.) To now apply ASME B31.8 to actions taken prior to July 1961 reverses the Commission's partial exemption decision more than 50 years after it was made. It makes even less sense to look to ASME B31.8 as an independent basis for violation for the period from 1961 to 1970. Throughout that era ASME B31.8 applied to California operators not directly, but as incorporated with modifications through GO 112. (See, e.g., GO 112-A, § 107.2.) It is to GO 112 that the Commission should then look, not ASME B31.8. Finally, ASME B31.8 holds even less sway in the period after 1970. GO 112-C eliminated entirely any reference to ASME B31.8 when it adopted Part 192. And, in only limited instances does Part 192 directly reference an ASME B31.8 standard. (See, e.g., § 192.619(a)(1)(i).)[5]

When adopted in 1970, the Part 192 regulations reflected a purposeful decision to depart from the ASME standards. To quote an influential paper on the development of the B31.8 standards: "[The OPS Director] and his staff could have adopted the B31.8 Code as the regulation, but [the OPS Director] believed that regulations should be developed by government, not industry."[6] With the adoption of Part 192 "the role of the B31.8 Committee was significantly diminished because they did not want to become an auxiliary to the federal rules group." Part 192 "essentially replaced the B31.8 Code as the safety standard for U.S. gas pipeline operators." In fact, after the adoption of Part 192, the B31.8 committee ceased activities for a time, and only reinitiated them when it became clear that B31.8 might continue to satisfy the need for an international code. In the face of this history, it makes no sense to ask if a U.S. operator "violated ASME Standard B31.8" after 1970. ASME did not set regulatory standards after 1970 and only in limited instances were ASME B31.8 standards referenced in Part 192.

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5 See 49 C.F.R. § 192.7 (Table). Subpart O of Part 192 extensively incorporates ASME B31.8S, but that addresses integrity management and is completely different than ASME B31.8.

6 Shires, T. M. et al., *Development of the B31.8 Code and Federal Pipeline Safety Regulations Implications for Today's Natural Gas Pipeline System*, GRI-98/0367.1, Volume 1, December 1998, at p.3. (Ex. 1-2.)

Speaking as a former pipeline safety regulator, I believe it would be unusually bad regulatory policy for this Commission to hold PG&E to ASME B31.8 standards after 1970 under pain of a penalty if it deviated from them. To do so, would run counter to the development of Part 192 as a code that effectively replaced ASME B31.8.

Fourth, the Duller/North Report extensively references 49 C.F.R. § 192.709 as a basis for alleging numerous violations relating to records retention.[7] Prior to 1996, Section 192.709 required that patrol, survey, inspection and test records required by subparts L and M be retained for as long as the line remained in service. The provision was amended in 1996 to reduce the retention period to at least 5 years or until the next patrol, survey, inspection or test was completed, whichever was longer. In my capacity as a federal pipeline regulator, I participated in the decisions that led to the 1996 changes to Section 192.709. The changes came about because in the preceding year President Clinton had launched the Regulatory Reinvention Initiative. A first objective of President Clinton's initiative was to "cut obsolete regulations," by any of several means. (Regulatory Reinvention Initiative, *Memorandum for Heads and Departments of Agencies* (March 4, 1995) (Ex. 1-3).) Section 192.709 was amended in 1996 in response to the President's initiative. (See Amdt. 192-78, 61 Fed. Reg. 28770, 28781-2 (June 6, 1996).) The amendment's aim was to alleviate the unnecessary burden of maintaining records beyond the period of time for which the records were useful or needed for compliance.[8] In theory, the Commission could, years after the fact, fault an operator if its standards prior to 1996 did not treat patrol, survey, inspection or test records as "life of the facility" records. But in taking such an action the Commission would be attempting to vindicate an obsolete regulatory requirement.

Finally, Chapter 1 of PG&E's June 20, 2011 submission included a discussion of partial exemptions for existing pipelines. That discussion did not mention how in the drafting of the Transmission Integrity Management Program (TIMP) regulations in the early 2000s policymakers returned to the idea of

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7 See Duller/North Supplement, Violations II.A1, II.B.1, II.B.2, II.B.3, II.B.4, and II.B.5.

8 See 61 Fed. Reg. 28770 (June 6, 1996).

requiring one-time testing of all gas transmission lines, even for those pipelines that had previously been grandfathered. The 2003 Final TIMP rule addressed a proposal that would have required “once-in-a-lifetime pressure testing” as a method of testing the integrity of pipe. (Amdt. 192-95, 68 Fed. Reg. 69778, 69791 (Dec. 15, 2003) (Ex. 1-4).) One public comment urged OPS to eliminate this proposal, arguing that “testing conducted upon installation (post 1971) or based upon historical operation, provides adequate evidence of safety.” (Ex. 1-4 at 69791.) OPS agreed with this and similar public comments, writing: “RSPA/OPS has been convinced by the public comments, including discussion at the public meetings, that it is not necessary to require a once-in-a-lifetime pressure test to address the threat of material and construction defects. Historical safe operation, which in many cases involves several decades, provides confidence that latent defects will not result in pipeline failure as long as operating conditions remain unchanged.” (Ex. 1-4 at 69791.)

CHAPTER 1B
RECORDKEEPING PRACTICES IN THE NATURAL GAS INDUSTRY

James Howe is currently Senior Vice President, Gas Engineering and Asset Management with CHA, an international engineering firm headquartered in Albany, NewYork. Previously, Mr. Howe was Senior Vice President, Network Strategy for US Gas Distribution at National Grid, one of the nation's largest local distribution companies serving New York, Massachusetts, Rhode Island, and New Hampshire. While at National Grid, he was responsible for standards, policies and procedures, operations regulatory compliance, investment planning for capital and O&M expenditures, resource management, system reliability and integrity engineering, project engineering and design, and gas control centers. Mr. Howe has more than 35 years of utility experience, approximately half of which has been directly working in the natural gas industry. Mr. Howe's current role at CHA involves working with natural gas companies on a multitude of projects that involve transmission and distribution pipeline design, integrity analysis, system expansion, operational assessment, project management, and construction oversight, as well as MAOP validation services.

In Chapter 1B, Mr. Howe evaluates the assertions made by Dr. Duller, Ms. North, and Ms. Felts regarding historic record-keeping practices in the natural gas industry and the traceable, verifiable, and complete standard, as well as assertions made by Mr. Gawronski regarding the intent and practice of 49 C.F.R. Part 192 with respect to MAOP validation and the "grandfather clause."

1. Historic Record-keeping Practices in the Natural Gas Industry and the Traceable, Verifiable, and Complete Standard

The report prepared by Dr. Duller and Ms. North speaks about their opinions regarding the concepts laid out in the GARP methodology and the Information Maturity Model as they relate to PG&E's historic recordkeeping practices. They also attempt to correlate "traceable, verifiable, and complete" terminology first used by the NTSB in 2011 with GARP.

Prior to a few months ago, Mr. Howe had never heard of GARP or the Information Maturity Model. In his experience, he has not seen either used within the natural gas industry as a means of assessing records management practices. In addition to not encountering any operator who

utilized GARP as the basis for their recordkeeping processes, he is not aware of any prior instance in which any regulator has evaluated a regulated entity's records management practices according to either GARP or the Information Maturity Model.

The NTSB introduced the term "traceable, verifiable, and complete" on January 3, 2011, when it issued a recommendation to PG&E, the CPUC, and PHMSA requesting that aggressive efforts be undertaken to locate records to support MAOPs for Class 3 and 4 lines and Class 1 and 2 HCA's (NTSB Recommendation P-10-2 and P-10-1), asking that all such records be "traceable, verifiable and complete." This followed with an Advisory issued by PHMSA to the industry, and within that same month the CPUC directed intrastate operators in California to undertake these recommendations. Nothing like the detailed records search recommended by the NTSB had ever been recommended or ordered in the natural gas industry prior to the January 3, 2011 recommendations and the California Commission's orders. Prior to this point in time, operators chose their method of MAOP validation in accordance with the regulations, and for whichever method was chosen, the corresponding records were to be complete. This did not apply to every record about a pipeline, but only those for the method an operator used to validate MAOP per the current regulation. The effect of the NTSB's recommendations was to eliminate the grandfather clause in California (and, pending PHMSA's evaluation, possibly for the industry in the U.S.), which has often been relied upon by the industry, and send PG&E and other utilities on an aggressive and diligent search for strength test and design-basis records, which in the case of grandfathered pipe had not previously been relied upon to establish MAOP. If it was unable to comply with these recommendations, then the NTSB recommended that PG&E (P-10-4) establish the MAOP using a new spike test followed by a hydrostatic pressure test. The requirement that where possible those "traceable, verifiable, and complete" records be used to confirm MAOP regardless of the method previously used to validate MAOP set a new regulatory expectation.

The PHMSA Advisory issued on May 7, 2012 recognizes that the industry has been allowed to establish MAOP in accordance with 49

C.F.R. Part 192 utilizing the "grandfather clause," which "allows pipelines that had safely operated prior to the pipeline safety MAOP regulations to continue to operate under similar conditions without retroactively applying recordkeeping requirements or requiring pressure tests." (Ex. 1-1.) It notes that the selection of which method specified in 49 C.F.R. Part 192 for determining MAOP may be affected by availability of records:

> On January 10, 2011, PHMSA issued Advisory Bulletin 11-01. This Advisory Bulletin reminded operators that if they are relying on the review of design, construction, inspection, testing and other related data to establish MAOP and MOP, they must ensure that the records used are reliable, traceable, verifiable, and complete. *If such a document and records search, review, and verification cannot be satisfactorily completed, the operator cannot rely on this method for calculating MAOP or MOP and must instead rely on another method as allowed in 49 CFR 192.619 or 49 C.F.R. 195.406*.

(Ex.1-1 (emphasis added).)

The Advisory also demonstrates that clear definition of how new requirements will be defined and applied is still being determined:

> PHMSA will issue more direction regarding how operators will be required to bring into compliance gas and hazardous liquid pipelines without verifiable records for the entire mileage of the pipeline. Further details will also be provided on the manner in which PHMSA intends to require operators to reestablish MAOP as discussed in Section 23(a) of the Act.

There has been extensive discussion within the industry to try to understand the new "traceable, verifiable, and complete" standard and determine the changes that will need to be made within each operator's company. Both the American Gas Association (AGA), representing primarily the local distribution company operators, and the Interstate Natural Gas Association of America (INGAA), representing primarily interstate pipeline operators, have engaged their members and have provided comments and

suggestions that clearly indicate that this standard is both new and very challenging to meet. On August 25, 2011, PHMSA issued an Advanced Notice of Proposed Rulemaking (ANPRM) that solicited industry views about whether to make more prescriptive requirements for collecting, validating, integrating, and reporting pipeline data. (Ex. 1-24.) In response to the PHMSA ANPRM, the AGA commented: "A traceable, verifiable, and complete compliance threshold is technically and legally unattainable for the pipeline infrastructure."[9] These discussions would not now be occurring if the "traceable, verifiable and complete" standard already existed and the industry already understood and was trying to adhere to that standard.

In California, where the new standard is already being applied in MAOP validation efforts by California operators, it has proven difficult to achieve. As Sempra stated in its April 15, 2011 filing, the "traceable, verifiable and complete" new standard would require a perfect chain of custody of records for pipelines installed over 50 years ago and that may have been subject to different regulatory requirements. "This is a very difficult, if not infeasible, threshold to achieve [.]"[10] Even the CPSD Staff worked to provide guidance and understanding of their interpretation of "traceable, verifiable and complete" in their May 3, 2011 letter to Southern California Gas Company: "We do not believe that reliance upon indirect evidence of the material condition of a natural gas transmission system is sufficient to meet the standard of 'traceable, verifiable, and complete' recommended by the NTSB and required by the Commission." (Ex. 1-26.)

As operators have begun their search for records in order to comply with the concept of "traceable, verifiable, and complete," more and more have found that they may not have complete historical or verifiable records. Following the NTSB's January 3, 2011 recommendations, the industry's acknowledgment has been that it faces significant gas transmission records challenges in locating records. Here are just a few examples:

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9 Preliminary Comments of the American Gas Association, p. 10 (Dec. 2, 2011) (Ex. 1-25.)

10 Report of Southern California Gas Company and San Diego Gas & Electric Company on Actions Taken in Response to NTSB Recommendation, p. 9 (April 15, 2011).

- **American Gas Association** – The AGA commented in April 2011: "The natural gas industry is no different from other industries that face a challenge in maintaining its records of assets that are over 40 years old. One can imagine the challenges of keeping detailed physical paper records on every pipeline segment, some of which date back in excess of forty years."[11]

- **Pipeline Open Data Standard** – W.R. (Bill) Byrd, President of RCP, Inc., a leading consulting firm to the pipeline industry, recently gave a presentation to PODS on regulatory developments in recordkeeping in which he wrote that "some records simply get lost over time due to asset sale, corporate restructurings, etc. etc. etc."[12]

- **Southern California Gas Corporations** – In August, 2011, Southwest Gas Corporation submitted its proposed testing implementation plan. It has only about 15 miles of transmission pipeline in California. Of that, pressure records for approximately 7.1 of those miles installed in 1957 (after the 1955 ASME) and 1965 (after GO 112) are not readily available.[13] Similarly, Southern California Gas identified 385 miles of transmission pipeline in category 4 for which it did not have sufficient documentation of a strength test to at least 1.25 times MAOP.[14]

- **Gas Technology Institute** – GTI Report (September 2011) "The industry needs guidance and standards on what data should be collected from engineering and design, installation, integrity

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11 American Gas Association, *AGA White Paper on Verification of MAOPs for Existing Steel Transmission Pipelines*, p.2 (April 2011) (AGA MAOP White Paper) (Ex. 1-15).

12 W.R. (Bill) Byrd, P.E., *Regulatory Developments for Pipeline Recordkeeping*, available at http://www.pods.org/assets/file/Regulatory%20Developments%20in%20Pipeline%20Recordkeeping.pdf (Ex. 1-27).

13 Notice of Filing and Request for Approval of Southwest Gas Corporation's (U 905-G) Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan, Attachment A, p. 5 (August 26, 2011) ("The Victor Valley Transmission System contains approximately 7.1 miles of 6" and 8" steel pipe installed in 1957 and 1965 and has no readily available pressure test records").

14 Pipeline Safety Enhancement Plan of Southern California Gas Company (U 904-G) and San Diego Gas & Electric Company (U 904-M), pp. 6-7 (August 26, 2011).

management and operations. The data requirements should address regulatory compliance as well as internal integrity management."[15]

- **Interstate Natural Gas Association of America** – On July 13, 2011, INGAA responded to a May 20, 2011 PHMSA Notice of Advisory Committee Meeting and Request for Comments on a draft pipeline safety report in which INGAA set out an action plan for establishing MAOP and valid records for pre-regulation pipelines. In its action plan, INGAA raised several foundational questions about MAOP Validation, suggesting that the quality and existence of pipeline records will vary based on the vintage of the pipe.[16]

- **American Gas Association** – In December 2011, the AGA provided comments to PHMSA's August 25, 2011 Advanced Notice of Proposed Rulemaking. In those comments, the AGA wrote: "AGA is raising the issue of MAOP records verification because it wishes to clarify the pipeline safety code and emphasize that ASME B31.8 acknowledges that there will always be situations where records will not be traceable, verifiable and complete. Verification of records should not be an endless search for records." (Ex. 1-25, at 10.)

- **Pipeline & Gas Journal** – In an article entitled "Potential Impact of New Pipeline Safety Laws on PHMSA's Regulatory Initiatives" in the April 2012 edition of Pipeline & Gas Journal, it was observed that "The records and MAOP verification provision [Section 23 of the Pipeline Safety, Regulatory Certainty and Job Creation Act of 2011] follow the theme announced in PHMSA's 2011 advisory bulletin, but, importantly, do not codify the traceable, verifiable and complete standard or any other standard. PHMSA is expected to issue guidance this year on the elements necessary to conduct an appropriate records verification." (Ex.1-30.)

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15 GTI, *Intelligent Utility Workshop – Report Out* (September 15-16, 2011) (Ex. 1-28).

16 Letter from INGAA to Linda Daugherty, pp. 30-31 (July 13, 2011) (Ex. 1-29).

In addition, Mr. Howe gave a presentation in December 2011 to the Northeast Gas Association in which he described "typical gaps" in an MAOP Validation:

- Welds – Numbers and locations don't match, x-ray reports missing;
- Mill reports can't be linked to specific sections to document material strength;
- Material test reports can't be linked to specific materials;
- Missing hydro/MTR documentation for final tie-ins;
- Missing or incomplete as-builts; and
- Hydro documentation not signed off.[17]

Even as recently as May 2012, the recent American Gas Association Operations Conference included many forums and presentations regarding records review and MAOP validation, specifically how to apply "traceable, verifiable, and complete." Several operators described their efforts to understand and apply this new expectation, as well as their experience in dealing with gaps in historical records.

2. The Grandfather Clause

Modern pipeline safety is rooted in the first federal regulation for pipeline transportation, 49 C.F.R. Part 192. This regulation was developed using the available standards at the time, namely ASME B31.8, which had matured from initial introduction in 1935 to 1968, when the federal regulation was created, although the federal regulations had and continue to have many differences from the ASME standards. (Ex. 1-2.) Once the federal regulations were in place, industry focus shifted from applying voluntary engineering standards to complying with a uniform national pipeline safety requirement.

In his testimony, Mr. Gawronski claims that the grandfather clause was created recognizing that pressure tests that had been completed prior to

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17 James Howe and Julie Porcaro, *Transmission Pipeline Validation: The Changing Industry Landscape and Transmission Records Implications* (December 1, 2011) (available at http://www.northeastgas.org/pdf/nga_webinar_120111.pdf) (Ex. 1-31).

1970 may have only been performed to a pressure of 50 psi above MAOP, which would not satisfy the new requirement. His assertion is that prior to 1970 (or 1961 in the case of California), pipeline operators were still required to have all records and have completed a pressure test (even though the capability to perform field pressure testing was not developed until the 1950s),[18] and that the grandfather clause was put in place only to preclude the need for retesting to the new requirement.[19] While his references seem to support that assertion, other references from the rules indicate otherwise. Title 49 C.F.R. Part 192 recognized that the records of various operators may be incomplete. The AGA made exactly this point in its October 2011 Industry Guidance on Records Review for Re-affirming Transmission Pipeline MAOPs: "When the federal pipeline safety code came into existence, DOT recognized that historical operating pressure documentation might be the only records available for operators to establish MAOP, even if a pipeline had been tested according to the ASA/ASME standards in place at the time of installation."[20]

PHMSA's May 7, 2012 Advisory also addressed the grandfather clause and historical recordkeeping issues:

> Section 192.619 currently contains four methods for establishing MAOP: 1) the design pressure of the weakest element in the segment; 2) pressure testing; 3) the highest actual operating pressure in the five years prior to the segment becoming subject to regulation under Part 192; and 4) the maximum safe pressure considering the history of the segment, particularly known corrosion and the actual operating pressure. The third method, often referred to as the "grandfather clause," allows pipelines that had safely

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18 McGehee, *Report on the Maximum Allowable Operating Pressure (MAOP) Background and History* (1998) ("In the early 1950's testing equipment, procedures and technology were developed to test pipelines with water, and some operators began hydrostatic testing.") (Ex. 1-32).

19 Direct Testimony of John Gawronski on behalf of the City and County of San Francisco, I.11-02-016, April 30, 2012, pp. 7-8.

20 AGA, *Industry Guidance on Records Review for Re-affirming Transmission Pipeline MAOPs*, p.1 (October 2011) (Ex. 1-33).

> operated prior to the pipeline safety MAOP regulations to continue to operate under similar conditions without retroactively applying recordkeeping requirements or requiring pressure tests.

(Ex. 1-1.)

In practice, both regulators and operators applied the grandfather clause recognizing that historical records were at times incomplete, and that, in the words of the AGA, determining MAOP utilizing historical operating pressure is a conservative methodology because “it is almost always lower than or equal to the figures derived from using design records or pressure test.” (Ex. 1-15, at p. 5.) Operators followed that methodology when records were not available, and regulators did not audit for further records when that methodology was used.

CHAPTER 1C
THE DULLER/NORTH REPORT'S RECORDS MANAGEMENT ALLEGATIONS LARGELY MISS THE MARK

Maura Dunn, a records management expert, responds to the Duller/North Report's assertions about PG&E's general records management practices that form the basis for alleged Violation II.A.1, as that violation is articulated in the Duller/North Supplemental Report. The response is contained in the Expert Report of Maura L. Dunn, MLS, CRM, PMP, which is incorporated here by reference.

CHAPTER 1D
GAS TRANSMISSION RECORDS IMPROVEMENT EFFORTS

PG&E recognizes that it needs to improve its records and information management practices at an enterprise level and within its gas transmission organization. Its efforts to improve begin with the first principle that its records, including its gas transmission records, are key corporate assets. Going forward PG&E's records must deliver real time and accurate (traceable, verifiable, and complete) information about its gas pipeline system.

This section describes PG&E's efforts to transform its asset knowledge and records management practices. It explains the strategic records management plan taking shape at an enterprise level. It also addresses recent organizational changes aimed at implementing and sustaining records management improvements. These include significant organizational changes that emphasize asset knowledge management.

The gas organization has set a goal of achieving Publicly Available Specification (PAS) 55 certification. First published in 2004, PAS 55 reflects an international consensus about required good practices in the management of physical assets such as gas pipeline systems. Along the path to PAS 55 certification, PG&E intends to address the records management assessment recommendations it received earlier this year from its external records management consultant, PricewaterhouseCoopers (PwC).

1. Organizational Improvements

a. Enterprise Records Management Strategy

PG&E has begun to create a new Enterprise Records Management organization to develop and implement a company-wide Records Management policy. The Enterprise Records Management organization will: promote transparency and accountability for Records Management; protect vital records and enhance disaster planning; and ensure appropriate records retention practices. A cross-organizational steering committee guides the development of standards and policies associated with records management.

The committee is co-led by Karen Austin, Senior Vice President and Chief Information Officer, and Hyun Park, Senior Vice President and General Counsel of PG&E Corporation. Its members include Line of Business (LOB) representatives from Gas Operations, Electric Operations, Customer Care, Energy Supply, Regulatory Relations, Legal, Finance, Shared Services, Information Technology, and Human Resources. In addition, each LOB has a smaller working group formed to tackle particular records management challenges unique to that LOB.

In April 2012, PG&E hired Leslie Banach as the Company's Director of Information Management Compliance. She will direct the Company's Enterprise Records Management strategy. Ms. Banach formerly consulted with numerous large publicly-traded companies on records management practices. She reports directly to the Vice President and Managing Director of the Law Department.

Ms. Banach's key priorities include:

- Rollout of new policies and standards in partnership with the Compliance & Ethics Department;
- Define records accountability across the enterprise;
- Standardize multiple records retention schedules;
- Help the business identify record types;
- Address the storage and conversion of paper records;
- Work with IT to address Systems of Record; and
- Support Documentum[21] rollout and prioritization.

She is also assisting the Gas Organization in formulating a strategy for responding to records management improvement recommendations that the organization received from PwC on March 31, 2012.

At an enterprise-level, PG&E has begun building Enterprise Content Management solutions, including an enterprise search for records, the building out of an Information Governance and Retention Plan, an

[21] Documentum has been selected as PG&E's Enterprise Content Management and Enterprise Records Management platform.

eDiscovery strategy, and archiving tools for email and structured and unstructured data. The Enterprise Document Management Project will deliver an enterprise-wide foundation for the management of digital content at PG&E. Digital content includes electronic documents, electronic records, and digital media that are unstructured in nature.[22]

b. The Gas Asset Knowledge Management Organization

PG&E's gas organization has taken strides to enhance its asset knowledge and records management practices. It has created a new Asset Knowledge Management organization to oversee the records verification and MAOP Validation efforts, develop a gas distribution geospatial information system, perform timely updates of the mapping systems as gas facilities are installed or modified, ensure data quality, and implement advanced technology improvements.

The Asset Knowledge organization is headed by Sumeet Singh, a Senior Director who reports directly to Nick Stavropoulos, Executive Vice President, Gas Operations. Mr. Singh oversees six functional areas, each accountable at a Director or Manager level. One functional area is the Transmission Process and MAOP Validation Project. This group works on the data conversion of PG&E's historic gas transmission pipeline records. It continues to oversee the massive MAOP Validation effort involving the scanning of pipeline records, including as-built drawings, material requisitions, purchase orders, and other related records, the build out of pipeline features lists (PFLs)[23] using these records, the quality control and quality assurance of the PFL build out process, the engineering verification of MAOP based on the PFL build, and uploading the data to a new and

[22] Unstructured content is not stored as part of an enterprise application, such as SAP.

[23] A pipeline features list is a tabular array of data for a pipeline section, containing all pertinent data needed to support the assessment of design and operating pressure limits. Examples of data fields include installation date; feature type (e.g., pipe, fitting, valve, etc.); material specifications (e.g., diameter, wall thickness, steel grade, etc.); strength test information; and other related information. It is a base source of information for the new and enhanced GIS.

enhanced Geographic Information System (GIS).[24] The current emphasis of this organization is on transmission pipeline records, but it will also turn its attention to gathering and digitally converting other relevant transmission records, including pipeline asset maintenance and station records.

A second functional area is Distribution Process and Data Conversion. Today, PG&E does not maintain a GIS system for its approximately 42,000 miles of distribution assets. The Distribution Process and Data Conversion group has started the work of reviewing the paper records associated with PG&E's gas distribution assets located in its respective division offices to identify and develop a process for converting these records into an electronic form that can provide a basis for a gas distribution GIS. This is expected to be completed in three to four years on a rolling basis, division by division, starting in mid-2012.

A third functional area is Production Mapping. This group performs mapping functions for PG&E's gas transmission and distribution systems, adding updates to its mapping systems for new jobs associated with asset installation or modification in a timely and accurate manner.

A fourth functional area is the Technology and Tools group. The group manages the gas organization's technology improvement projects. Technology and Tools currently leads PG&E's GTAM project focused on implementing technology solutions for managing pipeline records and information, including the enhanced use of mobile devices in the maintenance and construction organizations, and the integration of traceable, verifiable, and complete pipeline data into three enterprise data management platforms: SAP, enhanced GIS, and Documentum. Enhanced GIS is being built from the ground up by leveraging PFL data rather than the data that was used to populate the existing GIS.[25]

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[24] GIS is a data system designed to capture, store, manipulate, analyze, manage, and present all types of geographically referenced data. In the context of PG&E's gas pipeline system, its GIS contains transmission pipeline location information that can be displayed geographically, and contains corresponding pipeline data (e.g., pipe diameter, wall thickness, material strength/specification, strength test information, and installation date) which can be referenced from the geographic display.

[25] PG&E also has not used any data from existing Pipeline Survey Sheets.

A fifth functional area is the Gas RIM group. It is responsible for, among other things, evaluating and implementing recommendations associated with PwC's assessment of the Gas Transmission Organization's records management practices. It will also work to align the Gas Organization's asset knowledge initiatives with the Company's emerging Enterprise Records Management strategy. The responsibility for managing gas transmission records in Documentum will also fall under this group.

The sixth functional area is Data Quality. Its objectives are three-fold. First, to work closely with the construction organization to improve the quality of as-built data and drawings and to ensure this information makes its way to the Production Mapping group in a timely manner so that the data can be integrated into Asset Knowledge Management databases. Second, it will be responsible for ensuring the quality of design drawings. These are electronic engineering drawings that are developed using a design application such as Auto-CAD and are included in job packages. Field engineers use these design drawings as a basis for the as-built drawings (the drawing that reflects what was actually installed in the ground). As part of PG&E's technology plan for Gas Operations, these design drawings will be geocoded, allowing the detailed design drawings to be pulled out of GIS and the as built drawing to be "snapped back in" to GIS at the conclusion of a construction project. Third, the Data Quality group will work to match information systems records (records in GIS, SAP, and Documentum) to the assets in the field on a sampling basis.

2. PG&E's Comprehensive MAOP Validation Project

a. Chronology

In response to the NTSB's recommendations and the Commission Executive Director's directive in Resolution L-410, dated January 3, 2011, PG&E undertook an unprecedented effort to collect physical records needed to verify the MAOP for Class 3 and 4 pipelines, as well as lines in Class 1 and 2 High Consequence Areas (HCA) without prior pressure tests. The MAOP Validation effort aims to ensure safe operations and to restore public trust collecting complete and detailed records to validate the MAOP for not only the pipelines associated with the NTSB recommendation and the

Commission's resolution but PG&E's entire gas transmission system, totaling approximately 6,750 miles of pipe operating at 60 psig or greater.

The MAOP Validation effort consists of three phases, with interim deliverables defined along the way. In Phase 1, the Company verified strength test pressure records for the HCA segments to determine whether PG&E had "traceable, verifiable, and complete" records of pressure tests on HCA transmission pipelines and for HCA pipelines installed prior to 1970, the pipeline's highest actual operating pressure from July 1, 1965 through June 30, 1970. To complete the verification, PG&E extracted from its existing GIS a list of all jobs associated with HCA segments. It then collected the physical records in the job files (a job file may include numerous folders), centralized them at its Emeryville facility, and scanned and indexed them in an electronic database called the Electronic Compliance Tracking System (ECTS). Phase 1 substantially concluded on March 15, 2011, a deadline imposed by the Commission. Meeting the deadline required a massive, around-the-clock effort on an unprecedented scale.

In Phase 2, the Company validated the MAOP of those HCA pipeline segments with no prior strength test records, as well as any segments necessary for immediate pressure restoration, and segments that changed class location from the June 2011 study (from Class 1 or 2 to Class 3 or 4). With the elimination of the grandfather clause in California it is no longer sufficient to use historic operating pressure to establish MAOP for older (pre-1970) pipelines. Instead, in this phase PG&E analyzed pipeline and pipeline attributes and features (e.g., valves, fittings, etc.) to compile a PFL and calculate a MAOP on a design basis for each respective feature. Documents gathered and reviewed as part of the PFL building process included as-built construction drawings, pipeline plan and profile drawings, bills of materials, material requisitions and specifications, and other related records. Where the information could not be identified about a feature's attributes, PG&E used the most conservative assumptions or performed excavations to confirm specifications. Pipeline engineers use the verified PFL values to validate the MAOP for each applicable pipeline component as an interim safety measure until the respective pipeline section is pressure

tested in accordance with CPUC directives and orders. The Company completed its MAOP review of all Class 3 and 4 and Class 1 and 2 HCA segments, amounting to 2,088 miles of pipe, on January 31, 2012.

On February 1, 2012, PG&E began Phase 3, which is focused on performing MAOP validation for the remaining non-HCA gas transmission pipelines (approximately 4,660 miles), with the same level of rigor as performed for HCA pipelines, as described in PG&E's PSEP filings. This work is scheduled to be completed in early 2013. PG&E has prioritized these non-HCA miles according to the Pipe Modernization Decision Tree included in the PSEP.

b. Use of ECTS

The MAOP project has entailed scanning, indexing (or doc-typing) and uploading paper records in ECTS. PG&E selected ECTS as a platform because it was an existing data management tool that could be quickly adapted and scaled to meet the MAOP validation efforts' requirements and pressing time schedules.

The CPSD report alleges that the Emeryville and ECTS data catalogues have "inadequate front-end validation, verification and insufficient data quality consistency checks."[26] PG&E disagrees. It is true that PG&E contracted out a significant portion of the document-typing work that supports the PFL build effort. However, all contract employees that served as document-typers on the MAOP Validation effort completed a 50-hour training program, led by PG&E. Following the program, the document-typers were required to successfully complete a test batch of documents. Experienced document typers provided feedback on the trainees' work to ensure quality control.

PG&E worked with its contractors to develop the training program and relied heavily on the expertise of its gas engineers to identify the types of documents and information necessary to the program. PG&E compiled a compendium of pipeline documents to assist document-typers in reviewing and collecting information from unusual or older iterations of PG&E records.

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26 Duller/North Report at 6-83, 6-84.

Additionally, PG&E developed a thorough quality control and quality assurance process for the entire MAOP Validation Project. PG&E has a team dedicated to perform quality control (QC) and has also identified a separate team of contractors to conduct independent quality assurance (QA) work throughout the MAOP Project. The QA team reviews the defined processes and the output from our work. As the project progresses, the QA team builds on the knowledge that the team has already gained about our data systems, gas transmission records practices, and the relevant document types. The quality assurance review is tracked and reported. If the QA testing identifies any "failures" (specific errors), the QA team works to ensure that the information is passed along to the appropriate team members and documented. To the extent the quality assurance team believes it is necessary to ensure quality for the ongoing production process, process changes are implemented.

PG&E has always viewed ECTS as an interim data management solution deployed for a narrow purpose: to enable the PFL build and MAOP validation efforts. It will continue to be used in this way as Phase 3 progresses. As part of the larger records management solution, however, the more than 3 million existing records (as of March 31, 2012) in ECTS are continuously transferred to their permanent repository, Documentum, where they are being OCR'd.[27] Documentum is now operational and available and supports a limited number of users during the initial testing phase. In addition, Documentum will be integrated with other enterprise information management systems (GIS and SAP) in 2013.

c. Industry's Recognition of PG&E's MAOP Efforts

PG&E's comprehensive MAOP validation work has drawn positive attention both within the United States and internationally. Mr. Singh presented "The New MAOP Regulations: Are You Ready?" at the Geospatial Information & Technology Association GIS for Oil & Gas Pipeline Conference in Houston, Texas in October 2011. During this presentation, he discussed the methodology used for records verification and maximum allowable operating pressure validation. These efforts help enhance

[27] The term "OCR" refers to Optical Character Recognition.

integrity management program objectives, and aid in decision-making and are critical to operating a safe natural gas transmission system. Mr. Singh also presented a paper detailing PG&E's Project at the American Gas Association's Operations Conference in San Francisco, California in May 2012. The paper is entitled "Gas Safety Margin Informed by Records Verification and Maximum Allowable Operating Pressure Validation" and addresses lessons about conducting MAOP validation and records verification work, as well as recommendations to other operators on how to build an asset management program with traceable, verifiable, and complete data. He also presented this paper at the World Gas Conference in June 2012.

d. GTAM (Project Mariner)

As part of PSEP, PG&E proposed a GTAM Project to improve our records and information management infrastructure with next generation technology and tools. This effort will help PG&E meet the recommendation set forth by the NTSB for "traceable, verifiable and complete" records standard for the gas industry, and help PG&E move closer to the goal of establishing itself as an industry leader in records and information management.

Subsequent to the PSEP filing, PG&E renamed the GTAM project and now calls it Project Mariner. Project Mariner is a 4-year program to enhance the safety of our gas system by dramatically improving the accessibility and reliability of our pipeline information. It has three strategic elements. First, it is a project to enhance how PG&E collects data in the field. PG&E will deploy mobile data collection devices like tablet computers in its maintenance organizations. These devices will serve as a means to collect, centralize and validate data, all in real time. A field mechanic or technician will input data, but that data will not be accepted until all appropriate data fields have been completed. Data that appears to be erroneous will be highlighted for additional verification if it deviates from expected data ranges. Mobile data collection devices will reduce handoffs (the manual inputting of data) that increases the probability for data input error.

Second, Project Mariner is consolidating all of its numerous information systems into three Enterprise Systems (SAP, Documentum, and enhanced

GIS). The consolidation will increase access and retrievability of data, and increase opportunities to structure data, allowing everyone to get ready access to the same data in the same systems. This consolidation will eliminate the large number of disparate and largely uncoordinated data systems (e.g., IGIS, GIS 2.0, EDMS, ECTS, PSRS, Gas FM, PLM) that currently exist within the Company.

Third, Project Mariner is integrating gas transmission pipeline data using linear referencing, a pipeline industry standard model. Linear referencing is a tool that has been developed in industries, like the gas industry, that have linear assets.[28] It allows every gas asset and feature to be identified and located with accuracy and precision. It allows for the virtual segmentation of pipelines according to numerous and overlapping features, e.g., pipeline characteristics, integrity management history, HCA or class location, so that engineers can view pipelines in consolidated or highly segmented views depending on different characteristics. Where PG&E's current GIS system identifies pipelines in segments and two dimensions, linear referencing will identify pipelines in virtual segments and in three dimensions, stationing pipeline assets and features according to their actual locations. An asset that can be pin-pointed using linear reference can be assigned specific features, e.g., the location of a valve. That feature can then be visually displayed in GIS. GIS will, in turn, interface with the two other enterprise systems, SAP and Documentum, and link source documents and data to the respective asset. A pipeline engineer will be able to locate the precise location of a valve in GIS, for example, and immediately call up the source document from Documentum that explains the characteristics of the valve and call up from SAP the valve's most recent maintenance and repair history.

e. The PwC Records Management Assessment

In November 2011, PG&E's gas organization retained PwC as part of an information management initiative to address records-related findings, conclusions, and recommendations contained in the Independent Review

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[28] A linear asset, also known as a continuous asset, is an asset that is maintained in segments, such as a road, a pipeline, or a railroad track.

Panel's June 2011 report. The Company made a commitment to the Commission to seek this assistance in its June 20, 2011 submission in this proceeding.[29]

PwC reported on its completed work in a document entitled "Gas Operations Records and Information Management Assessment" dated March 31, 2012.[30] PwC leveraged a host of Records Information Management standards and guidelines, including GARP, to assess PG&E's Gas Operations' current state practices. These observations identified the state of records management within the gas organization as of early February 2012.

The PwC report listed 59 specific Records and Information Management improvement recommendations. PG&E continues to evaluate the recommendations in the context of its ongoing initiatives addressing records and data management. Many of our in-flight and planned initiatives will address the recommendations. Attachment 1D to this Chapter sets out in table format the PwC's recommendations and PG&E's plan to address them.

One point bears emphasis. The PwC report is a valuable source of records assessment information. It is, however, just one source. Addressing PwC's recommendations will help, but it is not an end in itself. As the accompanying table illustrates, many of the PwC recommendations will, we believe, be addressed in the course of making and sustaining larger asset knowledge and records management initiatives of the kind described above and in the process of achieving PAS 55 certification.

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29 Pacific Gas & Electric Company's June 20, 2011 Response to I.11-02-016, Chapter 2A, p 2A-3.

30 The Duller/North Report quotes liberally from preliminary and draft documents PwC prepared in the course of its assessment. PG&E does not question CPSD's ability to access such information. It does, however, question staff's heavy reliance on PG&E's self-critical evaluation as a supporting factual basis for seeking to penalize PG&E for past actions. If sanctioned by the Commission, staff's behavior may in the future discourage other utilities from undertaking honest, candid self-evaluation aimed at making safety improvements.

ATTACHMENT 1D
ALIGNMENT OF PG&E'S INITIATIVES WITH PWC RECOMMENDATIONS

As of June 25, 2012

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
A.1	Seek commitment to be a gas utility with a leading RIM program by highlighting benefits and clearly defining the vision with tangible milestones. Present at industry conferences on RIM initiatives.	Under Consideration.
A.2	Strive to be a gas utility with a top RIM program by leveraging leading practices from within gas and other industries.	PG&E has established the Enterprise Records Management Department and hired a Director of Information Management Compliance in the Legal Department with records management expertise to head this organization. The Director of Information Management Compliance has previous experience with leading utility organizations and a network of business associates currently at leading utility organizations and federal agencies. In addition, a Gas Records Information Management (RIM) organization has been established as part of the Asset Knowledge Management organization within Gas Operations.
A.3	Leverage the RIM Principles and the attributes of RIM Maturity to devise a Gas RIM strategy that seeks to move the Gas organization to a higher maturity level.	From the RIM principles being designed at the enterprise level, Gas Operations will be aligned with the enterprise strategy.
B.1	Align with Corporate Records Management Policy and Retention Schedule; at a minimum including Legal (with possible Outside Counsel review) Corporate Secretary, and Corporate Information Governance Council.	An updated Records and Information Management Policy and enterprise-wide records retention schedule is being developed by the PG&E Records Management Department which will include records retention for the Gas Lines of Business and be executed by the Gas Organization's RIM program, estimated to be completed in 2012-2013.

31 Response Descriptions: Ongoing: Activities currently in place; In Progress: Preparing to act on recommendations; Under Review: Recommendation being planned for future implementation; Under Consideration: Recommendation being considered for potential adoption.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
B.2	Create Gas Governance Structure, including: – Gas Information Governance Council – Gas Steering Committee – Gas RIM Director Role – Regional / Business Unit Managers and Coordinators	Established a Director of Gas Records and Information Management position and organization within Asset Knowledge Management as part of Gas Operations. In addition, the Gas Operations Working Group (GWG) was established in May 2012 to support records management initiatives, such as the conversion of certain paper records to a central electronic repository, Documentum. The GWG includes a representative from each of the respective functional groups within Gas Operations.
B.3	Gas RIM Director / Council should create and own the RIM Project Plan / PMO overall and track progress, challenges, milestones reached, and evaluate necessary changes to plan and timelines, etc.	The successful candidate for the Director of Gas Records Management position will be responsible for all records management program milestones and progress.
B.4	Consider creating a formal Gas Compliance organization leveraging and renaming the existing "Standards and Policies" line of business.	Gas Operations established the Regulatory Compliance and Support department as part of the newly-formed Standards and Policy organization.
B.5	Consolidate and update Retention Schedules. Retention schedule to apply to all content regardless of storage medium (e.g., database, paper files, image system, microfiche, backup tape, etc.).	The PG&E Records Management Department will be aggregating all separate Lines of Business retention schedules and creating an enterprise-wide Records Retention Schedule for all records. A Records Retention Working Group, including representatives from all Lines of Business, has been established to implement this initiative.
B.6	Update/Enhance Records Management Policy, including but not limited to the following sections: – Legal Holds – Define a Record vs. a Non-Records; Vital Records, and define "Transient" Information – Guidelines for 3rd parties handling PG&E information – Information on Mobile Devices – Social Media	The PG&E Records Management Department has developed a Records and Information Management Policy that includes all sections as described except Social Media, which is addressed by a separate policy. The Gas RIM organization will be responsible for the execution of this policy.
B.7	Embed the Corporate Records Management Policy and the Retention Schedule within each Gas function.	Once the policy and retention schedule are published across the enterprise, all Lines of Business will be held accountable to execute policy expectations. The Gas RIM organization will provide governance over the execution of this policy.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
C.1	Provide RIM training to all Gas Operations employees.	The PG&E Records Management Department is drafting training modules and will be finalized upon publication of the Records Management Policy and Records Retention Schedule. The Gas RIM organization will be responsible for implementing this training.
C.2	Create a holistic Gas Operations learning curriculum that provides timely, job-specific, technical and soft-skills training and includes RIM concepts and principles.	RIM concepts and principles will be included in the rollout of new mobile technology, field training, and new hire orientation. The Gas RIM organization will provide governance over the execution of this rollout.
C.3	After initial RIM training courses conducted, identify functions and/or individuals that require additional Change Management and training assistance.	Activities will be designed to assess training effectiveness. The Gas RIM organization will be responsible for implementing this training.
C.4	Develop and execute a Gas RIM Program Communications plan that helps to enhance and sustain executive support for the RIM initiative, educate all employees on the importance of effective RIM and the priority of the RIM program for PG&E, drive adoption of the records management policy and retention schedule.	Gas Operations issued an initial message to all Gas Operations employees communicating the objectives and role of the GWG and the importance of information management. Additional, follow-up communications will be conducted to further reinforce these concepts.
C.5	Promote cross-level camaraderie and knowledge sharing by having leadership conduct "a day in the field" visits at least once a year, and observe the work, including the RIM related practices.	Under Consideration.
C.6	Identify additional resources (internal or external) with appropriate skill sets and experience to work at direction of identified PG&E resources with Quality Control and Vendor Management expertise. Leverage resources execute on planned temporary or interim activities to resolve any backlog of work (filing, mapping, other functions as deemed appropriate), and to help prep and organize records at locations in advance of larger digitization efforts.	PG&E continues to hire additional resources with the appropriate expertise to focus on quality control efforts to ensure proper controls are in place and followed. The GWG is working to identify the record types within Gas Operations and develop a prioritization and implementation plan for migrating records to Documentum.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
C.7	Promote Cross-Functional Teamwork to improve processes, including data accuracy and quality.	Gas Operations has established a Quality and Improvement group within the Standards and Policy organization to design and implement QA processes and lead cross functional activities for data quality process improvement efforts.
C.8	Solicit, evaluate and respond to feedback from employees (after some significant RIM activities have been rolled out to the organization). Provide incentives to employees for generating cost savings and other innovative ideas, without compromising quality.	Under Review.
C.9	Consider creating a "Gas Employee of the Month" program to highlight employees who have demonstrated positive impact to RIM culture.	PG&E has multiple avenues in place for employee recognition.
C.10	Consider creating a "Gas Records Management Day" to promote and get employees involved in various RIM activities. Leverage as an employee morale event / teaming event / training.	Clean up days will be instituted as part of the Enterprise Records Management program.
C.11	Consider consolidating Gas Distribution Mappers to one location to facilitate consistency and controls. Retain 1-2 local field resources for local requests and M&C assistance.	Under Consideration.
C.12	Develop appropriate success criteria, and appropriate metrics with quality aspect. Leverage the metrics in a positive light to promote progress and achievements. Recognize employee contributions to support the organization's goals as it relates to RIM principles and initiatives.	Asset Knowledge Management is implementing quality metrics for all data conversion initiatives. See Chapter 1D.
D.1	Create a Standard that indicates that all reporting metrics must include a Quality component, or a footnote as to the method in which the quality of the metrics was supported/confirmed.	Under Consideration.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
D.2	Create a requirement and protocol for reporting any potential systemic data quality or RIM issues to immediate Supervisor and Gas RIM Director.	During the current paper to electronic digitization initiatives, there is a defined process for reporting data quality issues. See Chapter 1D.
D.3	Review and update the process/procedure for Employee Departure / Transfer to ensure transition of Records from employee custody or on hard drives/servers to corporate custody, storage and management.	Employee Departure/Transfer records management will be addressed in the Records and Information Management Policy and the supporting procedures document being developed by PG&E's Records Management Department.
D.4	Create a formal Disposition Procedure to address records eligible for disposition, including preservation obligations, approval for disposition, and appropriate disposition techniques.	A formal disposition procedure for electronic and hard copy records will be addressed in the new Records and Information Management Policy and supporting procedures document being developed by PG&E's Records Management Department.
D.5	Integrate RIM controls within Gas Operations business processes.	The Gas RIM organization will be responsible for implementing these processes.
D.6	Create formal guidelines for the storage of physical records, including temperature/moisture conditions, and consideration of fire-safe location for vital physical records.	PG&E's Records Management Department will develop formal guidelines for the enterprise.
D.7	Develop and execute plan for evaluating historical Gas paper Records currently at Iron Mountain (post Cow-palace review effort in 2011) and determine what should be scanned, and appropriate disposition.	Under Review.
D.8	Establish process and protocol to ensure continued alignment with Corporate Records Management Policy, Retention Schedule, RIM standards, guidelines and procedures, process maps, and data inventory based on a defined refresh schedule (suggested Annual Review or other trigger event such as a new Regulation).	The Gas Organization is participating in the Enterprise Records Management program to ensure alignment with all Corporate Records & Information Management policies.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
D.9	Create a gas records and information data inventory to identify and locate all (paper and electronic) Records and Information populations.	In progress, with oversight provided by the GWG.
D.10	Identify Records in Unstructured data stores, such as Shared Drives and Intranet.	In progress, with oversight provided by the GWG.
D.11	Develop a strategy and process to migrate active and historical electronic information from discrete storage locations (i.e., shared drives, PCs, etc) to a centralized repository (i.e., Documentum).	A migration plan has been established for transmission as part of the 4-year Gas Transmission Asset Management Program (GTAM) and currently being executed. Active and historical records will be considered for migration or indexing in Documentum.
D.12	Perform Gas Operations Compliance review on RIM Program components, such as Corporate Records Management Policy, Retention Schedules and other related RIM procedures.	The PG&E Records Management Department will implement a compliance review process. The Gas RIM organization will implement this process within Gas Operations.
D.13	Create interim Audit Plans (assess risk, define frequency, scope, type of audit) for Quality Assurance and Internal Audit, and define RIM controls for audit plans. Considerations include: – Regulatory landscape – Recordkeeping standards, processes and procedures – Processes affected by regulations – Assessing risks across the organization – Defining frequency, scope and type of audit/review – Collaboration and coordination among gas operations QA and corporate Internal Audit – Future Data Quality checks after data migration into new systems	Under Review.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
D.14	Once the RIM program is stabilized, update and enhance long term Audit Plans (assess risk, define frequency, scope, type of audit) for Quality Assurance and Internal Audit, and define RIM controls for audit plans. Considerations include: – Regulatory landscape – Recordkeeping standards, processes and procedures – Processes affected by regulations – Assessing risks across the organization – Defining frequency, scope and type of audit/review – Collaboration and coordination among gas operations QA and corporate Internal Audit – Future Data Quality checks after data migration into new systems	Under Review.
D.15	Review the current list of Gas Operations business processes to validate and document a comprehensive list of all gas operational processes (that should follow the full information lifecycle).	As part of the Gas Operation's ongoing process improvement efforts, business processes are being reviewed, validated and updated where required.
D.16	Evaluate and refresh Gas business process maps for the newly defined/validated list of processes, instituting a rigorous protocol for standardization, approval by key process/sub-process owners and socialization to drive downstream activities (e.g., training, work procedures, records types, data map, quality assurance).	In Progress.
D.17	Align and revise all Standards and Work Procedures to the updated list of all Gas Operations Processes.	Under Review.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
D.18	Develop and maintain comprehensive log of all Gas Operations "special projects" and initiatives to ensure any new Records or data stores that may be created as a part of the effort, has appropriate RIM practices.	Gas Operations has initiated an inventory of Gas Special projects. The next steps are to determine where RIM practices can be integrated into the processes.
D.19	Address known challenges and backlog of Gas Maps.	In progress. PG&E has significantly increased focus on mapping challenges such as implementing a Company-wide metric that measures the reduction in the backlog of jobs associated with gas installation or modification received and identified as a complete job package by mapping but pending updates to the mapping systems.
D.20	Add RIM Program standards to the five year standards review process in Gas Operations.	Under Review.
D.21	Once RIM program and processes achieve stability, identify and develop continuous improvement activities for the Gas RIM Program.	Under Review.
E.1	Conduct rigorous and thorough Data Cleansing effort prior to any consolidation or migration of electronic data into new or interim systems.	Asset Knowledge Management has implemented this process. An example is the Transmission Leak Consolidation effort, in which historical paper copy leak documents and data systems containing leak information (including legacy systems) are verified and validated for completeness and accuracy prior to conversion to a centralized enterprise system, SAP.
E.2	Identify potential data completeness gaps through results of Data Cleanse exercises.	Asset Knowledge Management has adopted this process as part of its data cleansing effort. The Records Verification and MAOP Validation project is an example of this.
E.3	As a part of Business Requirements gathering efforts, evaluate what Information should be gathered to support future state Gas Operations processes and planned advancement of Integrity Management analysis.	Both our Transmission Integrity Management Program and our Distribution Integrity Management Program are providing feedback to the GTAM program and the distribution GIS program to identify desired data elements.
E.4	Build on Records digitization efforts from the MAOP Validation project, continue to capture paper-based records and documents electronically.	Completed records digitization for ~5,300 miles of a total 6,750 miles for transmission pipeline assets as part of the Records Verification & MAOP Validation project. The GWG is providing oversight to prioritize the next group of records that will go through the digitization process.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
E.5	Standardize the use of stand-alone repositories such as SharePoint and email so they can align and potentially integrate with RIM procedures going forward.	Under Review.
E.6	Create and execute a process to transfer data captured in emails to appropriate permanent repositories and discourage the use of email as a data store or personal electronic filing “cabinet.”	Under Review.
E.7	Identify, and migrate official Records stored on network Shared Drives and local personal computer hard drives to a designated central repository (Documentum). Consider eliminating Shared Drives for some functions.	Under Review.
E.8	Identify and develop remediation plan for other electronic "off-line" data stores such as floppy/hard disks, CDs/DVDs, USB drives, external hard drives, etc.	Under Review.
E.9	Enhance Detailed Business Requirements Gathering for Technology Systems. This should include specific discussions with various relevant workforce populations on: – User Interface – Gas Processes Workflows – Reporting / Metrics – Taxonomy – Metadata – Security Access and Protection Model (who should/should not have access to vital Gas Asset Records?)	Asset Knowledge Management is implementing this recommendation for various work streams. GTAM and the distribution GIS project are examples.
E.10	Develop a holistic Gas Operations, Business Applications "Target Operating Model" that includes all Gas (Distribution and Transmission) systems, Records, and data stores.	Under Consideration.

PwC Rec. No.	Recommendations Made from PwC Report	PG&E's alignment of existing initiatives to each PwC recommendation[31]
E.11	Ensure all system user interfaces in which new information or data points are entered, incorporate appropriate preventative and detective controls to help minimize data quality issues at the point of information creation.	As part of the GTAM Program, focused on re-designing the major business processes for transmission assets to implement this recommendation. See Chapter 1D.
E.12	Leverage the PG&E Intranet Gas Operations page for a centralized, searchable, and easily navigable resource of all Gas Policies, Procedures, and Standards, (including RIM-related).	PG&E will be using Documentum instead of its intranet page for this functionality.
E.13	Develop and execute a formal "Hold In Place" process for Documentum to facilitate preservation under Legal Holds. Ensure reporting/auditing of Holds In Place is also included.	Under Review.
E.14	Consider a Contract Management System plug in/interface to Documentum system to facilitate robust, consistent and controlled Gas Contracting lifecycle process.	Under Consideration.
E.15	Reassess / re-examine the existing Technology and Systems landscape and compare against new tools and systems processes in the market to determine if Gas Operations needs are still being met in the future. This process should occur roughly once every 3 years.	In Progress.
E.16	Create and implement a Gas IT technical support sub-group (via the phone help line) that can more specifically address Gas Operations systems issues.	The Information Technology (IT) organization created a specific Gas IT team to focus on and provide support for technology related projects for the Gas Operations Organization.

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CHAPTER 1E
PG&E'S PIPELINE RECORDS INTEGRATION PROGRAM, COMBINED WITH A COMPREHENSIVE ENTERPRISE-WIDE RECORDS MANAGEMENT PROGRAM, PROVIDES A STRONG FOUNDATION FOR A ROBUST FUTURE STATE

Maura Dunn, a records management expert, evaluates PG&E's forward-looking efforts to improve its records and information management programs. Her evaluation is contained in the Expert Report of Maura L. Dunn, MLS, CRM, PMP, which is incorporated here by reference.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

APPENDIX A

JUNE 20, 2011, TESTIMONY OF

CESAR DE LEON, CHAPTER 1.C.

CHAPTER 1

APPENDIX A

JUNE 20, 2011, TESTIMONY OF CESAR DE LEON, CHAPTER 1.C.

C. Industry, State and Federal Partial Exemptions for Existing Pipelines

The chart below tracks the development – the first in the form of industry standards, and later state and federal rules – of the policy decision to partially exempt existing pipeline facilities from regulation. The narrative that follows the chart explains these developments in greater detail.

FIGURE 1-3
PACIFIC GAS AND ELECTRIC COMPANY
DEVELOPMENT OF POLICY DECISION TO PARTIALLY EXEMPT EXISTING PIPELINES FROM REGULATION

1. GO-112 Partially Exempted Existing Facilities.

The 1959 OII that led to the adoption of the original GO-112 was not a reaction to a specific event, but instead was an effort on the part of the Commission to get out ahead of gas pipeline safety regulation. *See* Decision No. 61269 (December 28, 1960) (RH-2) (Ex. 1-5) (explaining why the Commission felt it necessary to adopt a general order to promote pipeline safety). The Commission did not need to wait for a serious pipeline safety accident before taking action. *Id.* In fact, regulatory agencies in 14 states had already prescribed pipeline safety rules. *Id.*

In other words, the Commission's pipeline safety regulations were forward-looking. Like the ASME standard it adopted, GO 112 partially exempted existing pipeline facilities (and related records) from its reach. Section 104.3 stated:

> It is not intended that these rules be applied retroactively to existing installations in so far as design, fabrication, installation, established operating pressure, and testing are concerned. It is intended, however, that the provisions of these rules shall be applicable to the operation, maintenance, and up-rating of existing installations.

GO 112, § 104.3 (RH-3).[1] The provision manifested the Commission's intent not to regulate the design, manufacture, construction, and initial testing of pipeline facilities placed in the ground prior to GO 112's July 1, 1961, effective date.

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[1] The wording of Section 104.3 is derived from a provision that appeared in both the 1955 and 1958 revisions of ASME B31.8. ASME B31.8, § 804.6 included the statement:

> It is not intended that this code be applied retroactively to existing installations insofar as design, fabrication, installation, established operating pressure, and testing are concerned. It is intended, however, that the provisions of this shall be applicable to the operation, maintenance, and up-rating of existing installations.

ASME 1955; ASME 1958 (RH-3). This point is significant because it shows a broader recognition within the pipeline industry that emerging safety standards had only limited application to existing facilities.

The same statement of intent that appeared in Section 104.3 of GO 112 appears in two more iterations of GO 112. Both GO 112-A and GO 112-B included the same partial exemption for existing facilities. GO 112-A, § 104.3 (RH-4); GO 112-B, § 104.3 (RH-6). These later statements confirm the Commission's resolve not to apply GO 112 (or GO 112 A or B) to facilities that existed prior to July 1, 1961, the effective date of the original GO 112.

Records provisions in these early GO 112s must be read against the backdrop of § 104.3's partial exemption for existing facilities. For example, one former recordkeeping provision in GO 112, § 122, required "[s]pecifications for material and equipment, installation, testing and fabrication to be maintained by the utility." (RH-3). This prescriptive recordkeeping requirement (later removed from subsequent iterations of GO 112) obligated a utility to maintain certain records for facilities installed after July 1, 1961. By the terms of § 104.3, however, this provision never extended to the initial design, construction, and testing of preexisting facilities.

The partial exemption set forth in § 104.3 dropped out when the Commission adopted GO 112-C in April 1971. In its Decision, the Commission explained: "[s]ection 104.3 of G.O. 112-B which covers applicability of the rules to existing installations is deleted, because the subject is covered by Section 192.13 of Chapter II of proposed GO 112-C and the federal standards are more stringent." GO 112-C Decision at 3 (RH-30) (Ex. 1-6).[2] Thus, as of April, 1971, GO 112-C's provision limiting

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[2] The GO 112-C Decision's reference to Section 192.13 was a reference to the retroactivity provisions of the newly promulgated 1970 federal pipeline safety regulations. Those regulations (as incorporated by GO 112-C) provided:

> § 192.13 General
>
> (a) No person may operate a segment of pipeline that is readied for service after March 12, 1971, unless that pipeline has been designed, installed, constructed, initially inspected, and initially tested in accordance with this part.
>
> (b) No person may operate a segment of pipeline that is relocated, or otherwise changed after November 12, 1970, unless that replacement, relocation, or change has been made in accordance with this part.

its retroactive application had been deleted in favor of the comparable provision in federal law. The federal regulations, like GO 112, rested on a fundamental public policy decision to exempt from regulation the design, manufacture, construction and initial testing of existing facilities.

2. The 1968 Federal Law Also Partially Exempted Existing Facilities

Federal pipeline law also partially exempts existing pipeline facilities from its reach. As a consequence, and as discussed below, certain federal recordkeeping requirements promulgated in 1970, and amendments thereafter, did not extend to existing facilities.

The question of how a national pipeline safety law might apply to existing pipeline facilities figured prominently in the legislative debate that led to the NGPSA's enactment. Senate Bill 1166 (S.1166) was introduced in March, 1967. S. 1166, 90th Cong. (1967) (RH-38). As originally proposed, Section 3 of the bill authorized the Secretary to promulgate regulations with full retroactive application to existing facilities: "Such regulations . . . shall apply to the design, installation, inspection, testing, construction, extension, operation, replacement, and maintenance of existing and proposed gas pipelines . . . ." *Id.* at § 3.

The Senate Commerce Committee took up S.1166 in hearings held in April and August, 1967. In his prepared remarks addressed to the Senate Commerce Committee in April, the Secretary of Transportation urged the Committee to adopt a law with full retroactive application. *S. 1166, A Bill to Authorize the Secretary of Transportation to Prescribe Safety Regulations for the Transportation of Natural Gas by Pipeline, and for Other Purposes: Hearings Before the Senate Committee on Commerce,* 90th Cong 2-8 (1967) (prepared remarks of Secretary of Transportation Alan S. Boyd) (RH-39). The Secretary signaled that, if granted the authority, he would require the pressure testing of all existing pipeline facilities:

> I previously mentioned that the code used by the industry is deficient concerning existing pipelines both in

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(c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.
(RH-30) (Ex. 1-6).

> transmission and distribution systems. The American people must be assured that these lines are safe and that lines constructed today will remain safe throughout their useful life. To do this, if the Department is given the authority by enactment of this legislation, we propose a retesting program for existing lines and a more complete test of new lines after construction.

Id. at 8.

These remarks prompted the following exchange:

> SENATOR GRIFFIN: Mr. Secretary, on page 13 of your statement you say that "We propose a retesting program for existing lines." I don't know a great deal about this industry, but I would imagine a retesting program of all existing lines could be a rather major undertaking.
>
> SECRETARY BOYD: I think it is quite right to assume that it is a major undertaking. We are unable to ascertain how much it will cost because a large part of that question is really a function of time. Certainly our thinking up to the moment is that there should be a very reasonable period of time within which to initiate, carry out, and complete the testing program. I can't give you a more definitive answer.

Id. at 20 (colloquy between Sen. Robert P. Griffin (MI) and Secretary Boyd). Later, in the same hearings, the Chairman of the FPC was questioned by Senator Griffin on the same topic. *Id.* at 30-50 (testimony of Lee C. White, Chairman of the FPC). The Chairman testified in substance that the costs of retesting existing pipelines would be borne by the gas system, and perhaps ultimately by the consumers in the form of higher rates. *Id.* at 40. The Committee also received information indicating that the cost of retesting all 200,000 existing miles of transmission pipeline in the United States could exceed one billion dollars. *Id.* at 337 (testimony of W. A. Strauss, representing the Interstate Natural Gas Association of America (INGAA)).

In the fall of 1967, the Senate Commerce Committee reported out a version of S.1166 substantially different from the one initially introduced. In

particular, the full retroactivity clause of Section 3 had been redrafted to provide for only limited retroactivity:

> [S]tandards affecting the design, installation, construction, initial inspection, and initial testing shall not be applicable to pipeline facilities in existence on the date such standards are adopted, unless the Secretary finds that a potentially hazardous situation exists, in which case he may by order require compliance with any such standards. Such Federal safety standards shall be practicable and designed to meet the needs of pipeline safety.

S.1166, as reported to the full chamber by the Senate Commerce Committee, Section 3(b), at 6 (1967) (RH-40). The reasons prompting the change—a change from a fully retroactive law to a partially retroactive one—were set forth in the Senate Committee Report:

> The committee appreciates the fear of the industry that it might be required to bear the expense of removing large quantities of pipeline laid before a standard becomes effective for no other reason than that it does not comply with the Federal standard, irrespective of whether the pipe is sound and safe. For this reason, the committee has provided that standards affecting the design, installation, construction, initial inspection and initial testing shall not be applicable to pipeline facilities in existence on the date such standard is adopted, unless the Secretary finds that a potential hazardous situation exists, in which case, he may by order require compliance with any such standard.

S. Rep. 733, 90th Cong., p. 7 (1967) (RH-41) (Ex. 1-7). Thus, when S. 1166 passed out of the Senate, it included Section 3(b)'s limited exemption for existing facilities. S.1166, as passed by the Senate, 90th Cong., § 3(b), at 4 (1967) (RH-42).

In late 1967, S.1166 moved to the House, where it was joined with other House pipeline safety bills and referred to the Subcommittee on

Communications and Power of the Committee on Interstate and Foreign Commerce. The House Subcommittee held numerous hearings between December, 1967 and March, 1968. *H.R. 6551, S.1166, Bills to Prescribe Safety Standards for the Transportation of Natural and Other Gas By Pipeline, and for Other Purposes Before the House Subcommittee on Communications and Power of the Committee on Interstate and Foreign Commerce*, 90th Cong. (1967-68) (RH-43). In testimony before the Subcommittee, the Transportation Secretary urged that Section 3(b), as amended in the Senate Commerce Committee, be stricken. He characterized Section 3(b) as a "partial exemption from retroactive application" of standards contained in S.1166." *Id.* at 17 (prepared remarks of Secretary Boyd). The Secretary went on to testify: "[t]he primary problem results from the fact that whatever standards have been applied, have been applied primarily to new pipe and to new construction." H. Rep. No. 90-1390, at 17 (1968) (appendix to statement of Secretary Boyd) (RH-9). The Secretary testified further that he considered the major shortcoming of the ASME code, which had been adopted by most of the States and voluntarily implemented by the industry, was that it did not provide for systematic testing or evaluation of pipe already in the ground. *Id.* As was the case in the Senate, there was significant debate on Section 3(b) in the House. One concern expressed by the pipeline industry was that, even as amended, Section 3(b) retained a clause allowing the Secretary to declare a hazard and apply existing standards to eliminate the hazard. *Id.* at 22-23 (Subsection "Applications of Standards to, and Removal of, Hazards in Existing Pipeline Facilities"). The industry was concerned that without limits, the clause could be read to allow the Secretary to effectively gut Section 3(b)'s limited retroactivity provision. *Id.*

The House retained the partial exemption for existing pipeline, and weakened slightly the Secretary's ability to declare existing hazards by requiring that his finding be particularized. House Subcommittee on Communications and Power, 90th Cong., S.1166, § 3(b) at 4 (Subcommittee Print 1968) (RH-44). The House Report summarized:

> The committee believes that in giving the Secretary this authority to move directly to remove a hazard, the

> Secretary has the power permitting him to achieve protection to the public much more quickly and effectively than he might have were he to invoke the cumbersome and more restrictive route of attempting to apply standards of general universality to a given situation.

H. Rep. 1390, 90th Cong., p.23 (1968) (RH-9) (Ex. 1-8). The bill advanced to the House Committee of the Whole, where it was passed on July 2, 1968. After differences between the Senate and House versions of S.1166 were reconciled in Conference, it was passed by the House on July 26, 1968, and by the Senate on July 31, 1968. Section 3(b) of the Natural Gas Pipeline Safety Act of 1968, Pub. L. 90-481 was signed into law on August 13, 1968. As enacted, Section 3(b) provided in part:

> No later than twenty-four months after the enactment of this Act, and from time to time thereafter, the Secretary shall, by order, establish minimum Federal safety standards for the transportation of gas and pipeline facilities. Such standards may apply to the design, installation, inspection, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities. *Standards affecting the design, installation, construction, initial inspection, and initial testing shall not be applicable to pipeline facilities in existence on the date such standards are adopted.*

Public Law 90-481, 82 Stat. 720 (1968) (emphasis added) (RH-12).

The final rule promulgating the minimum federal safety standards in 1970 implements the legislative exemption for existing facilities by exempting them from "those provisions applicable to design, installation, construction, initial inspection, and initial testing of new pipelines." 35 Fed. Reg. at 13250 (RH-14). DOT clarified in the Preamble of that same rule, however, that "existing pipelines were subject to the maintenance, repair, and operations requirements." *Id.* at 13250. DOT also explained that the new provision at 49 C.F.R. § 192.13 was added to "clearly state the applicability of these regulations with respect to new and existing pipelines, and to avoid confusion as to the retroactive effect of these standards." 35

Fed. Reg. at 13251. Because of the "long lead times involved in preparing for pipeline construction," the new requirements for design, installation, construction, initial inspection, and initial testing would only apply to new pipelines that became ready for service after March 12, 1971. *Id.*

In particular, DOT recognized the need to treat existing pipelines separately when it promulgated 49 C.F.R. § 192.619(c), allowing an option for operators of pipelines existing prior to promulgation of the 1970 final rules to establish maximum allowable operating pressure ("MAOP") based on historical operating pressure, rather than relying on design criteria or pressure testing. 35 Fed. Reg. at 13273 (RH-14). Commonly referred to as the "grandfather clause," this provision was the product of the rulemaking by DOT in 1970 establishing Part 192. It was not addressed during the legislative history associated with the passage of the NGPSA or any proposed rules. Instead, in response to comments submitted by the FPC that some pipelines may or may not have been pressure tested in compliance with ASME B31.8, the Preamble to the 1970 rulemaking stated:

> In view of the statements made by the Federal Power Commission, and the fact that this Department does not now have enough information to determine that existing operating pressures are unsafe, a "grandfather" clause has been included in the final rule to permit continued operation of pipelines at the highest pressure to which the pipeline had been subject during the 5 years preceding July 1, 1970.
>
> The uprating requirements in Subpart K apply when an operator wants to establish a maximum allowable operating pressure higher than the highest actual operating pressure to which the pipeline was subjected in these 5 years. This will prevent an operator from using a theoretical maximum allowable operating pressure which may have been determined under some formulae used 20, 30 or 40 years ago.

35 Fed. Reg. at 13248 (RH-14).

In implementing the regulations, OPS consistently exempted pipeline facilities installed prior to 1971 from the design, construction, and initial testing requirements in Part 192. The Transportation Safety Institute (TSI), the DOT training agency, provides a chart setting forth the retroactive and non-retroactive subparts of Part 192. The April 2010 DOT/TSI document, chart entitled "Pipeline safety Laws" (RH-45) (Ex. 1-10), provides, in part:

TABLE 1-1
PACIFIC GAS AND ELECTRIC COMPANY
RETROACTIVE AND NON-RETROACTIVE SUBPARTS OF PART 192

Retroactive Subparts	Non-Retroactive Subparts
A. General	B. Materials
I. Corrosion (Dates:.July 31, 1971, August 1, 1971)	C. Pipe Design
K. Uprating	D. Design of Pipeline Components
L. Operations	E. Welding of Steel in Pipelines
M. Maintenance (Dates: November 12, 1970, March 12, 1971, July 31, 1977)	
O. Pipeline Integrity Management	F. Joining of Materials Other than by Welding
P. Distribution Integrity Management	G. General Construction Requirements for Transmission Lines
	H. Customer Meters, Services, Regulators and Service Lines
	J. Testing Requirements
	N. Operator Qualifications

Since 1973, OPS has also provided interpretations that support the exemption provisions in Section 192.13.[3] Logically, if these subparts do not apply retroactively to existing pipelines, then the recordkeeping provisions associated with them do not either.

This account of how and why policymakers decided to partially exempt existing facilities demonstrates that, more than a generation ago, state and federal policymakers grappled with a significant decision. They chose to partially exempt existing pipeline facilities from certain regulatory requirements, including regulations requiring the pressure-testing of transmission pipelines already in the ground. After the San Bruno accident, this policy decision is being revisited, as it should. Sixty-one percent of the Nation's transmission lines in the ground today were installed before federal regulations came into effect. American Gas Association, *AGA White Paper on Verification of MAOPs for Existing Steel Transmission Pipeline*, p. 1 (April 2011) ("AGA MAOP White Paper") (RH-50) (Ex. 1-15).

[3] Examples include: (1) PHMSA, PI-73-006, Interp 192.13(8) (OPS interpretive letter January 26, 1973 letter to the Department of Justice, State of Louisiana ("You ask whether the current erosion protection efforts make the pipeline subject to the requirements in section 192.13(b) . . . [i]t does not appear that a pipeline segment is in any way being replaced, relocated, or other wise changed, that section is not considered applicable")) (RH-46) (Ex. 1-11); (2) PHMSA, PI-79-019, Interp. 192.13(15) (June 20, 1979 letter to John Parker in Clinton, North Carolina ("Section 192.317(a) is a construction requirement that, in accordance with section 192.13, applies to new pipelines readied for service after March 13, 1971, or to existing pipeline that are replaced, relocated, or otherwise changed after November 12, 1970")) (RH-47) (Ex. 1-12); (3) PHMSA, Interp. 192.13(19) (November 3, 1982 letter to Tom Reifschneider in Council Bluffs, Iowa ("In this case, § 192.311 would not apply since it only governs the construction of new transmission lines and mains or existing ones that are being replaced, relocated, or otherwise changed (*see* §§ 192.13 and 192.301))) (RH-48) (Ex 1-13); (4) PHMSA, Interp. 192.13(22) (November 19, 1984 letter to Alfred Colabella in Bordentown, New Jersey (". . . any pipelines (or portion thereof) that were readied for service before March 13, 1971, and have not been replaced, relocated, or otherwise changed since November 12, 1970 may be used as service lines under part 192 without regard for the material, design, and construction standards (including standards for initial leak or pressure testing, and initial inspection). The pipelines must, however, meet the applicable operation, maintenance and corrosion control requirements of Part 192.") (RH-49) (Ex. 1-14).

CHAPTER 1

APPENDIX B

JUNE 20, 2011, TESTIMONY OF

CESAR DE LEON, CHAPTER 1.E.

CHAPTER 1

APPENDIX B

JUNE 20, 2011, TESTIMONY OF

CESAR DE LEON, CHAPTER 1.E.

E. Changes in Federal Gas Safety Recordkeeping Requirements from 1968 to 2010

The regulations implementing the 1968 NGPSA introduced federal recordkeeping standards. Following the initial regulations, OPS added only a handful of discrete recordkeeping requirements over the following 30 years until the introduction of Integrity Management regulations in 2003.

In overview, federal regulators embraced a regulatory philosophy that emphasized flexibility. The regulations include numerous examples where regulators accommodate the practical reality that operators, particularly of older pipelines, may lack gas pipeline records. Federal regulators have rejected invitations to provide the industry with specific recordkeeping standards or to review the recordkeeping procedures of individual operators.

FIGURE 1-6
PACIFIC GAS AND ELECTRIC COMPANY
FEDERAL RECORDKEEPING REQUIREMENTS AND GUIDANCE: 1970-2010

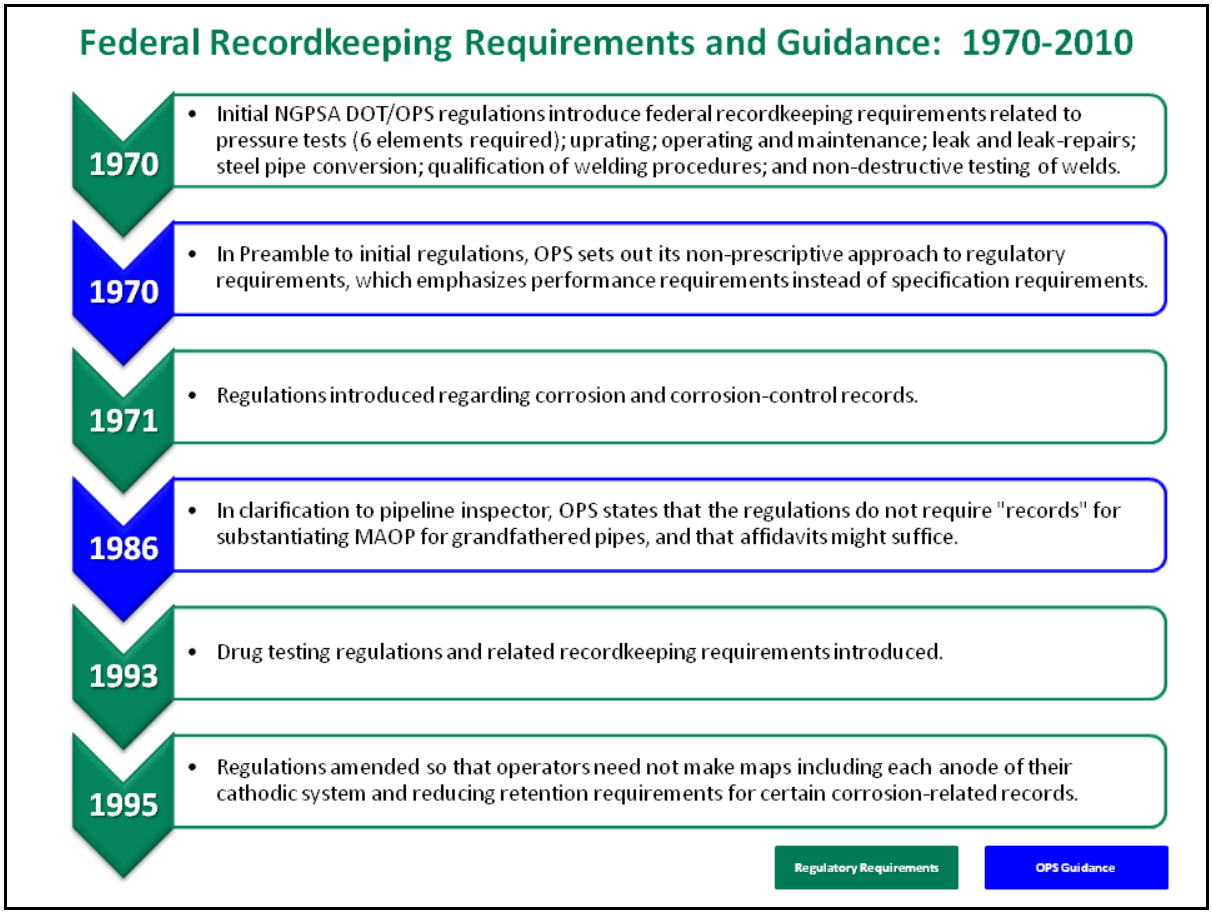
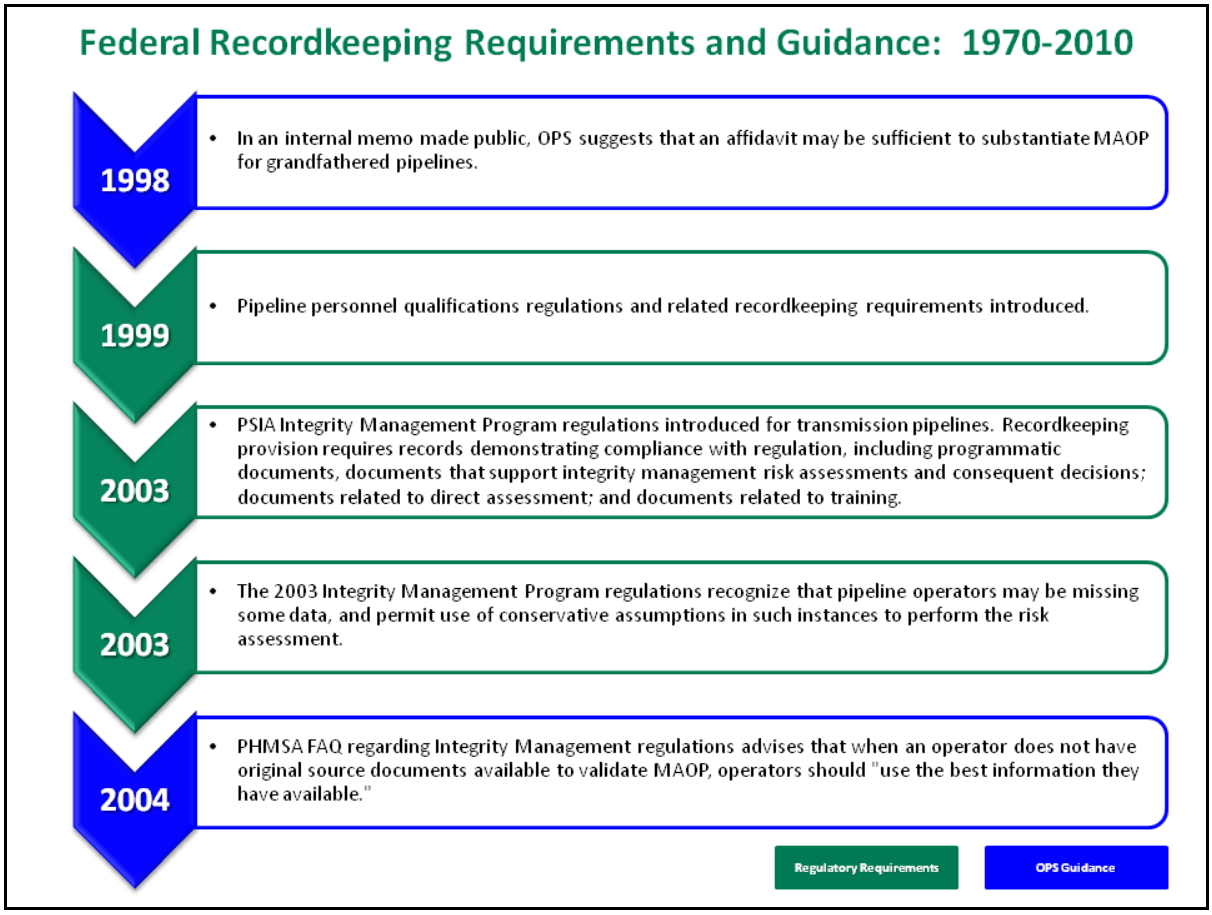
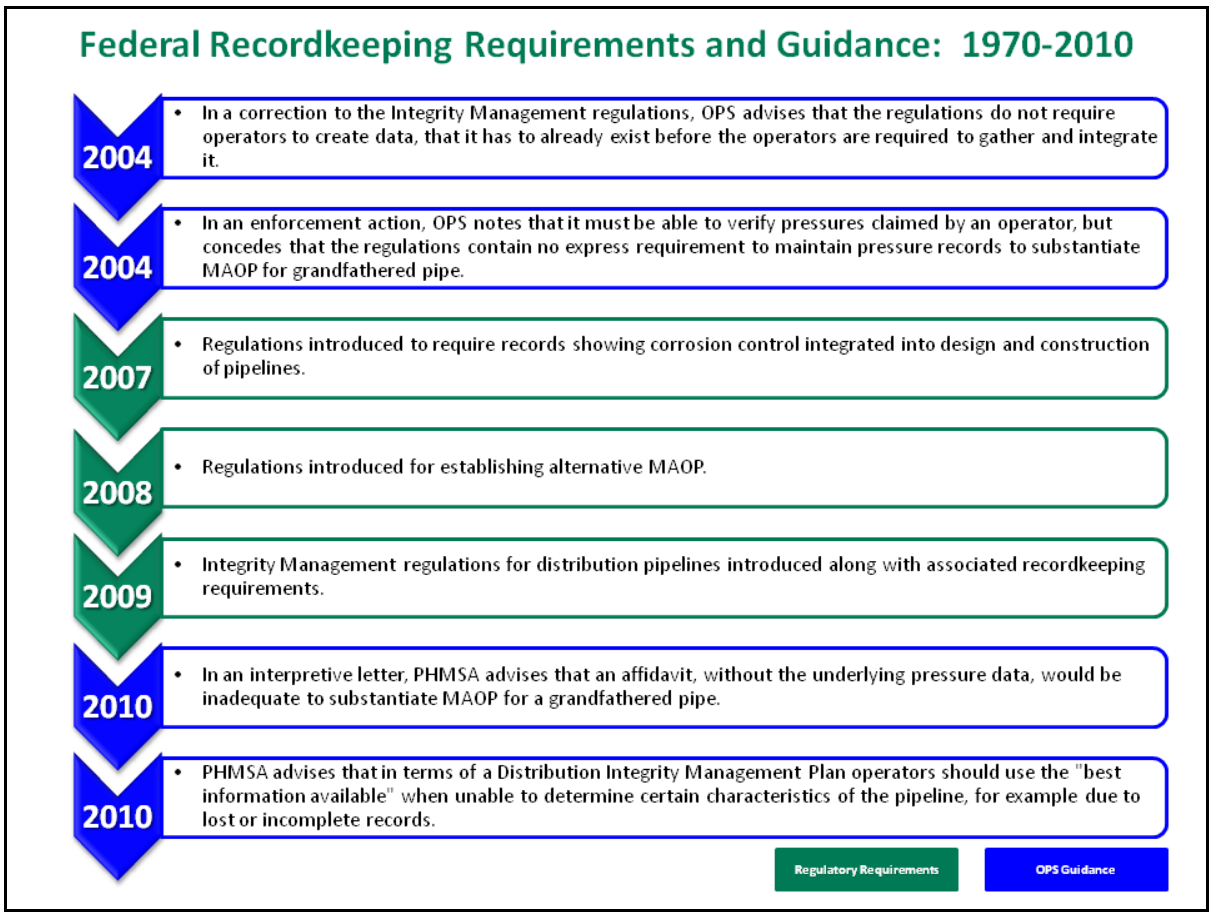


FIGURE 1-7
PACIFIC GAS AND ELECTRIC COMPANY
FEDERAL RECORDKEEPING REQUIREMENTS AND GUIDANCE: 1970-2010





1. Federal Regulators Recognized that Operators May Not Have Complete Records

"The natural gas industry is no different from other industries that face a challenge in maintaining its records of assets that are over 40 years old. One can imagine the challenges of keeping detailed physical paper records on every pipeline segment some of which date back in excess of forty years." AGA MAOP White Paper, p.2 (RH-50) (Ex. 1-15). From the beginning, federal pipeline safety regulations have confronted this challenge by providing guidance addressed to the practical reality that operators may not have complete pipeline records, particularly for pre-1970 pipelines. For example, Cesar de Leon is expected to testify at a later stage in this proceeding that in the late 1970s, when he was head of the OPS, he was consulted by a pipeline company preparing to acquire a pipeline system with incomplete records. Mr. De Leon recalled advising that the lack of complete records should not deter the acquisition of the pipeline system because it

would not affect the acquiring company's ability to operate the system in compliance with the regulations.

The 2003 Integrity Management rules and guidance address in frank terms the problem that data may not exist for certain pipelines. After issuing the final rule in December 2003, OPS made corrections. One of the corrections was to § 192.917(b), a paragraph requiring an operator to gather and integrate data from its entire pipeline system that could be relevant to identifying potential threats. In a petition for reconsideration, an industry group expressed the concern "that an operator will be required to create data" where none existed. In the Preamble, OPS responded:

Although it seems self-evident that an operator must only gather and integrate existing data about its pipeline system, industry has expressed concern that an operator will be required to create data. We have revised the paragraph to clarify that the data has to exist before it is gathered and integrated for analysis.

69 Fed. Reg. 18228, 18229 (April 6, 2004) (RH-53). The correction added the qualifier "existing" to the regulation. *Id*. at 18232.

This early recognition that the industry's records may be less than complete carries forward into more recently promulgated Integrity Management regulations at 49 C.F.R. 192 Part O. Those regulations incorporate the standards of ASME B31.8S (2004). The ASME Standards permit the use of conservative assumptions when operators do not possess complete pipeline information. For example, when addressing the requirements for gathering, reviewing, and integrating data for the different threats, the Standard enumerates what an Integrity Management program must address. Specifically, the Standard states, "[w]here the operator is missing data, conservative assumptions shall be used when performing the risk assessment or, alternatively, the segment shall be prioritized higher." The Standard allows for the use of conservative assumptions in risk assessment for external corrosion, internal corrosion, stress corrosion cracking, manufacturing threats, construction threats, equipment threats, and weather-related threats. The Standard goes on to note that "[w]hen pipe data is unknown, the operator may refer to History of Line Pipe Manufacturing in North America by J.F. Kiefner and E.B. Clark, 1996, SME."

See also DIMP Guidance, "Knowledge," in *Elements of a Distribution Integrity Management Plan* ("If practical, the operator should use the best information available to make decisions about what is in the existing system. In some cases, an operator may be unable to determine the materials or characteristics of some of the components of the system. This may be due to lost records, systems gained through mergers or acquisitions without complete records, or other reasons. For example, the year of installation might be used to make such decisions about piping material, joint type, coating type, or repair methods used") (RH-55) (Ex 1-16).

Recordkeeping guidance has dealt directly—if inconsistently—with recordkeeping gaps in the area of establishing MAOP under 49 C.F.R. § 192.619. Pipeline operators posed the question whether they had to provide original source documents to establish MAOP, and if those records do not exist "will DOT accept inventory map data for pipeline information, MAOP database information, etc.?" The response was practical: "Operators should use the best information they have available . . ." while ensuring that the data is accurate. PHMSA, Integrity Management FAQ-205 (issued Dec. 6, 2004) (RH-56) (Ex. 1-17). Yet what "best available information" means has changed over time. In 1986, a DOT pipeline inspector requested clarification from OPS regarding the requirements under 49 C.F.R. § 192.619(c). PHMSA, PI-86-005 (Aug. 4, 1986) (RH-57) (Ex. 1-18). He inquired whether "the regulations require that the operator have records to substantiate the pressures used to establish the MAOP per 192.619(c)?" *Id.* In an internal exchange, which was then made public guidance, OPS responded that "[t]he regulations do not require "records," however, enforcement personnel have to apply judgment as to what they will accept to substantiate the operator claim. A violation would have to be clearly obvious to be enforceable." *Id.* OPS then went on to state that "sworn statements by the operators" would be adequate to substantiate MAOP for grandfathered pipe. *Id.* In 1998, OPS prepared MAOP establishment guidance document reiterating the suggestion that an affidavit could be sufficient in some circumstances. PHMSA, *Determination of Maximum Allowable Operating Pressure in Natural Gas Pipelines, PHMSA* (April 22, 1998) (includes instructions and a form) (RH-58) (Ex. 1-19). And

then in a 2004 enforcement action, OPS stated that it must be able to verify the pressures that an operator claims to be applicable (but also conceded that the regulations contain no express requirement that pressure records must be maintained to substantiate MAOP for grandfathered pipe). PHMSA, Final Order, CPF 4-2004-1007 (Sept. 13, 2006)) (RH-59). In 2010, OPS provided an interpretative letter stating that an affidavit, without any underlying pressure data, would not satisfy substantiation under Section 619(c). PHMSA, PI-09-0021 (Aug. 11, 2010) (RH-60) (Ex. 1-23).

In sum, missing and incomplete pipeline records, particularly for older lines, are challenges the industry as a whole confronts. Federal regulators had to this point accommodated record gaps in pragmatic terms. In regulations, interpretative letters and other guidance they recognized the practical reality that pipeline operators may not possess complete records regarding all of their pipeline segments.

2. A Flexible Approach to Federal Safety Regulations

Federal pipeline safety standards have generally been written in performance-based language to permit operators flexibility in compliance and to allow innovation in the industry. This regulatory philosophy was set out in the Preamble to the initial 1970 regulations:

> Performance v. specification requirements. As indicated in the series of notices upon which this regulation is based, we intend to state the Federal safety standards in performance terms, rather than as detailed specifications, whenever it is possible to do so within the state-of-the-art and without lowering the required level of safety.

Final Rule, 35 Fed. Reg. at 13250 (RH-14). Federal pipeline safety rules have generally been written to permit operators flexibility in compliance and to allow innovation in the industry. 54 Fed. Reg. 46685, 46686 (Nov. 6, 1989) (RH-63). OPS has thus resisted writing rules that specify, or tell an operator "how to do it." 59 Fed. Reg. 6579, 6580 (Feb. 11, 1994) (RH-64).

The limited recordkeeping guidance from OPS that exists hews closely to this overarching regulatory philosophy. In 1975, OPS responded to a letter from an operator regarding the microfilming of various corrosion

control records. After receiving the recordkeeping requirement inquiry, OPS advised: "[t]his section does not prohibit the use of microfilming to preserve the records nor does it require that the original documents be retained after being put on film. The regulations do not require the certification of the microfilm process." PHMSA, PI-75-01 (October 21, 1975), letter interpreting 49 C.F.R. §192.491 from Cesar De Leon, Acting Director, OPS (RH-65) (Ex. 1-20).

Indeed, the OPS has in the past declined to adopt general standards regarding the sufficiency of recordkeeping procedures or an operator's specific recordkeeping procedures unless legitimacy of the records was questioned. In a letter dated August 5, 1993, OPS responded to an operator's request for guidance regarding the use of computers to store information instead of paper records. OPS wrote that "[u]nder Parts 191 and 192, operators may use any recordkeeping procedure that produces authentic records, without the prior approval of this agency." PHMSA, PI-93-047 (Aug. 5, 1993) (RH-66) (Ex. 1-21). In the same letter, OPS resisted an invitation to review an operator's procedures. It noted a practical problem in doing so: The OPS had not provided any recordkeeping standards against which to audit the adequacy of the operator's procedures.

> Although authenticity of records concerns us, for both computer and paper records, *we do not believe there is sufficient need to adopt generally applicable standards governing recordkeeping procedures*. In the absence of such standards, we ordinarily do not review an operator's recordkeeping procedures unless the legitimacy of records is in question. Accordingly we have no comments at this time on the adequacy of your proposed standards.

Id. (emphasis added). In an early question regarding whether Section 192.603(b) required an operator to maintain maps of gas transmission or distribution systems, OPS responded in terms that echoed its flexible regulatory philosophy. "If an operator requires maps as records to properly administer the operating and maintenance plan to meet the Federal safety requirements, then these maps must be maintained by the

operators." PHMSA, PI-72-031 (July 17, 1972), letter interpreting §192.603(b) from Joseph C. Caldwell, Director, OPS (RH-67) (Ex. 1-22).

3. Federal Gas Safety Recordkeeping Provisions

This subsection summarizes federal recordkeeping rules in Part 192. In summary, the 1970 federal regulations introduced recordkeeping provisions related to testing, operation, maintenance, repair, MAOP determinations, uprating, and welding. A year later, the regulations added requirements for corrosion control records. New recordkeeping requirements were then not added until 1993, when recordkeeping requirements related to drug testing of pipeline personnel were promulgated. In 1994, additional operation and maintenance recordkeeping requirements were introduced, and in 1999, recordkeeping requirements related to personnel qualifications were instituted. In 2003, requirements for records of pressure tests to detect leaks were added. From the promulgation of the various recordkeeping requirements in the original 1970 regulations, there have not been many significant recordkeeping changes until the integrity management regulations were put into effect in 2004. In keeping with OPS's philosophy, the recordkeeping provisions are generally not prescriptive or standard-based. Key recordkeeping requirements are summarized below

4. Pressure Test Records

In Subpart J of the 1970 federal regulations addressing test requirements, § 192.517 required operators to retain for the useful life of the pipeline records of each strength test performed under § 192.505 (for steel pipeline operating at a hoop stress of 30% or more SMYS) and under § 192.507 (for pipeline operating at a hoop stress less than 30% of SMYS and at or above 100 psi). 35 Fed. Reg. at 13270 (RH-14). Under § 192.517, each record was required to contain at least the following elements: (1) the operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used; (2) the test medium used; (3) the test pressure; (4) the test duration; (5) pressure recording charts, or other record of pressure readings; (6) elevation variations, whenever significant for the particular test; and (7) leaks and failures noted and their disposition. The Final Rule does not

mention any comments on this recordkeeping requirement or discuss any reasoning associated with its particulars.

5. MAOP Records

At Section 192.619, the 1970 regulation specified how to determine the maximum allowable operating pressure. 35 Fed. Reg. at 13273 (RH-14). In 2008, PHMSA added regulations at § 192.620 permitting determination of an alternative MAOP. 73 Fed Reg. 62174, 62177 (Oct. 17, 2008) (RH-68). Section 192.620(c) requires that operators maintain for the life of the pipeline records demonstrating compliance with the requirements under § 192.620 for making an alternative MAOP determination. *Id.* As discussed above, OPS guidance on what records operators must keep to substantiate MAOP has been practical. It has at certain points instructed that affidavits may suffice instead of original records, although that guidance has been variable. PI-86-005 (RH-57); PHMSA April 1998 MAOP Guidance (RH-58) (Ex. 1-19); Final Order, CPF 4-2004-1007(RH-59); PI-09-0021 (RH-60) (Ex. 1-23).

The 1970 regulations set out the requirements for operators to uprate a pipeline, *i.e.*, increase its maximum allowable operating pressure, at § 192.551 et seq. 35 Fed. Reg. at 13270-71 (RH-14). At § 192.553(b), the regulations required that operators who uprate a pipeline segment retain for the life of the segment a record of each investigation required by the regulations, of all the work performed, and of each pressure test conducted in connection with the uprating. *Id.* at 13271. This uprating records requirement at § 192.553(b) has not changed since it was issued in 1970.

6. Operating and Maintenance Records

The 1970 Subpart L, Operations, regulations require that an operator "establish a written operating and maintenance plan" and "keep records necessary to administer the plan." 35 Fed. Reg. at 13272, 49 C.F.R. § 192.603 (RH-14). The "essentials" of an operating and maintenance plan were set out at § 192.605, and included instructions for employees for normal operations and maintenance, records required under the Maintenance subpart, programs related to facilities that present the greatest hazard, programs for conversions from low-pressure to high-pressure

systems, and provisions for periodic inspections to ensure operating pressures were appropriate for the class location. *Id, 49 C.F.R.* § 192.605 (a) to (e). The elements required under § 192.605 for an operating and maintenance plan remained the same from 1970 until 1994. In 1994, OPS significantly revised § 192.605, reframing the provision to specify certain procedures that operators must develop and include in a "[p]rocedural manual for operations, maintenance, and emergencies." 59 Fed. Reg. at 6584-85 (RH-64). The required procedures are divided into the categories of "maintenance and normal operations," 49 C.F.R. § 192.605(b); "abnormal operation," § 192.605(c) "safety-related conditions reports," 49 C.F.R. § 192.605(d); and "surveillance, emergency response, and accident investigation," 49 C.F.R. § 192.605(e). The relationship of the recordkeeping requirements to the beefed-up underlying requirements, however, remained the same, as § 192.603 was merely rephrased to state that each operator "shall keep records necessary to administer the procedures established under § 192.605." The provision does not specify a retention period or prescribe the "records necessary to administer the procedures." The recordkeeping requirements under § 192.603 for complying with the maintenance of the "procedural manual" have not changed since the 1994 amendment.

Section 192.112, added with the alternative MAOP provisions in 2008, states that for pipeline to be eligible for operation under the alternative MAOP calculated under § 192.620 (which PG&E does not use), a segment must meet certain design requirements and operators must maintain for the life of the pipeline records demonstrating compliance with those requirements. 73 Fed. Reg. at 62175-76 (RH-68). Further, the segment must meet certain additional construction requirements and § 192.328 requires that operators maintain records demonstrating compliance for the lifetime of the pipeline. *Id.* at 62176-77.

7. Maintenance and Repair Records

The 1970 regulations specified maintenance and repair records that operators must keep for transmission lines at § 192.709 under Subpart M. 35 Fed. Reg. at 13273 (RH-14). Operators were required to keep, for as long as the transmission segment remained in service, records covering

each leak discovered, repair made, transmission line break, leakage survey, and line break. *Id.* Those recordkeeping requirements remained the same until 1996, when OPS replaced the requirements with specified periods for three sets of documents. 61 Fed. Reg. 28770, 28786 (June 6, 1996) (RH-69). Under the amended version, § 192.709 requires an operator to keep records on the date, location and description of each repair for as long as the pipe remains in service. 49 C.F.R. § 192.709(b). The operator must retain the same information for repairs to parts of the pipeline system other than the pipe, but only for five years. 49 C.F.R. § 192.709(c). Records of each patrol, survey, inspection and test required by the Operations and Maintenance Subparts must be retained for at least five years or until the next, patrol, survey, inspection or test, whichever is longer. 49 C.F.R. § 192.709(c). These requirements have not changed since the 1996 amendment.

8. Steel Pipeline Conversion Records

Should an operator choose to convert a steel pipeline previously used in service not subject to Part 192 to qualify for service under the part through meeting the requirements set out at § 192.14, added by amendment in 1977, § 192.14(b) requires keeping records for the life of the pipeline showing compliance with those requirements. 42 Fed. Reg. 60146, 6148 (Nov. 25, 1977) (RH-70).

9. Welding Records

Subpart E of the 1970 regulations set out the requirements for welding of steel pipes. Section 192.225 specified "[q]ualification of welding procedures," with § 192.225(c) requiring that each welding procedure be recorded in detail during the qualifying tests and that the resulting record be retained and followed whenever the welding procedure was used. 35 Fed. Reg. at 13265 (RH-14). The § 192.225(c) requirement has remained the same since its promulgation, except for the clarification added in a 1988 amendment that the results of the test must be included in the record. 51 Fed. Reg. 20294, 20297 (June 4, 1986) (RH-71). When nondestructive testing of welds is required under § 192.241(b), operators must retain records for the life of the pipeline information regarding those tests,

including the number of welds rejected as a result. 49 C.F.R. § 192.243(f) 35 Fed. Reg. at 13266 (RH-14). This requirement has not changed.

10. Corrosion Control Records

OPS decided to delay promulgating initial regulations regarding corrosion control until the year following the issuance of the initial regulations implementing the NSPGA. In 1971, OPS amended 49 C.F.R. 192 to add Subpart I, which specified requirements for corrosion control. 36 Fed. Reg. 12297-12304 (June 30, 1971) (RH-72). Section 192.491 addressed corrosion control records. *Id.* at 12304. It required that after July 31, 1972, each operator maintain, for as long as the pipeline remained in service, records or maps showing the locations of cathodically protected piping, galvanic anodes, cathodic protection facilities, and neighboring structures bonded to the cathodic protection system. 49 C.F.R. § 192.491(b)(1). The operator was also required to retain for the life of the pipeline records of each test, survey or inspection required by the subpart, in sufficient detail to demonstrate the adequacy of corrosion control measures or that a corrosive condition did not exist. 49 C.F.R. § 192.491(b)(2) (1971). Section 192.491's requirements for corrosion control records remained the same, except that in a 1996 amendment, OPS relieved operators of the burden of making maps that would show the specific locations of every anode, and also reduced the retention requirement to five years for the corrosion test, survey, and inspection records required under § 192.491(b)(2). 61 Fed. Reg. at 28785 (RH-69). The lifetime retention requirement for records or maps showing locations under § 192.491(b)(1) remained the same, however. *Id.* Additionally, in 2007 PHMSA amended Part 192 to require, at § 192.476, that internal corrosion control is integrated into the design and construction of transmission pipelines. 72 Fed. Reg. 20059-60 (April 23, 2007) (RH-73). Section 192.476(d) requires operators to maintain records showing compliance with that requirement. *Id.* at 20060.

11. Operator Qualification and Fitness Records

Qualifications: In a 1999 amendment to 49 C.F.R. Part 192, OPS inserted Subpart N, addressing qualifications of pipeline personnel. 64 Fed

Reg. 46853, 46867 (Aug. 27, 1999) (RH-74). At § 192.807, OPS added the requirement that operators maintain records demonstrating compliance with the personnel qualifications subpart. *Id.* at 46865-66. The records were required to include identification of the qualified individuals, identification of the covered tasks the individual was qualified to perform, the dates of the qualification of the individual, and the qualification method. 49 C.F.R. § 192.807(a). The operators were required to maintain the records while the individual was performing the covered tasks. Records of prior qualifications of individuals and records of individuals no longer performing covered tasks were to be retained for five years. 49 C.F.R. § 192.807(b). The requirements of § 192.807 for personnel qualifications recordkeeping have not changed since their introduction in 1999.

Testing: In 1993, OPS amended 49 C.F.R. Part 199 to require operators to submit reports on drug testing of pipeline personnel. 58 Fed. Reg. 68258-68272 (Dec. 23, 1993) (RH-75). The amendment required that operators retain records showing positive drug test results, records showing the type of test used, and records that demonstrated rehabilitation. *Id.* at 68258-59, 49 C.F.R. § 199.23(a). The operators were required to keep the records for at least five years. In 2003, the requirements were amended at § 199.117 so that operators were required to also retain records confirming that supervisors and employees had been trained as required by the part. 68 Fed. Reg. 75455, 75465 (Dec. 31, 2003). (RH-76). Operators were required to keep those training records for at least three years. *Id.* The drug testing record requirements have not been changed since the 2003 amendment.

12. Integrity Management Recordkeeping Requirements

As described above, the federal regulators implemented new complex requirements to assess pipeline risk and ensure pipeline safety about a decade ago, as mandated by the Pipeline Safety Improvement Act of 2002. Pub. L. No. 107-355, 116 Stat. 2985 (2002) (RH-26); 68 Fed. Reg. 69778-837 (Dec. 15, 2003) (RH-77). The Integrity Management regulations set out recordkeeping requirements at § 192.947. 68 Fed. Reg. at 69827. The recordkeeping provision includes the general requirement that an operator maintain, for the useful life of the pipeline, records demonstrating

compliance with Subpart O, the Integrity Management regulations. 49 C.F.R. § 192.947. The operator must also retain nine types of documents for review during an inspection. Three of the required types could be characterized as programmatic Integrity Management documents: a written Integrity Management program in accordance with § 192.907; a written baseline assessment plan in accordance with § 192.919; and the schedule required by § 192.933 that prioritizes the conditions found during and assessment for evaluation and remediation, including technical justifications for the schedule. *See* 49 C.F.R. §§ 192947(a), (c) & (f). Two categories capture documents that support the programmatic Integrity Management documents: documents supporting the threat identification and risk assessment in accordance with § 192.917, and documents to support any decision, analysis or process developed and used to implement and evaluate each element of the baseline assessment plan and Integrity Management program. *See* 49 C.F.R. § 192.947(d)). Two categories relate to direct assessment: documents to carry out the requirements in § 192.923 through § 192.929 for a direct assessment plan (§ 192.947(g)), and documents to carry out the requirements in § 192.931 for confirmatory direct assessment (§ 192.947(h)). One category targets documents demonstrating that personnel have the required training and a description of the training program, in accordance with the requirements of § 192.915 (§ 192.947(e)). The final category is for verification documents demonstrating that the operator has provided any documentation or notification required by the Integrity Management regulations to OPS or, when applicable, a state authority. § 192.947(i). The Integrity Management recordkeeping requirements at § 192.947 have not changed since their introduction in 2003.

* * * * *

In summary, three themes emerge from this discussion about historical recordkeeping requirements. First, the recordkeeping provisions in GO 112 & 112-A-112-E changed and became less prescriptive over time. Second, federal regulations have dealt pragmatically with the challenge that gas operators may lack complete gas pipeline safety records. Third, federal

regulators have declined to impose detailed specified recordkeeping standards, leaving the rules flexible.

CHAPTER 1

APPENDIX C

CURRICULUM VITAE OF

CESAR DE LEON

Curriculum Vitae

César de León, P.E.

Pipeline Safety Consultant ● PanAm Pipeline Technology, Inc.
218 Hoskins Trail; Boerne, Texas 78006
T: 830.537.6009 C: 210.452.0235 cesardeleon@gvtc.com www.pipelinesafetyconsultant.com

SUMMARY OF CAREER

Over 40 years of engineering mgmt. experience in oil industry, Federal government, & consulting includes:

IN GOVERNMENT– Director of Office of Pipeline Safety in U.S. Department of Transportation.

IN OIL INDUSTRY – V.P. of Marketing & Admin. of company manufacturing oilfield well service equipment & (2) Engineering Manager of oilfield well servicing company.

NOW IN CONSULTING – Pipeline safety engineering consultant in PanAm Pipeline Technology.

CAREER EXPERIENCE

PanAm Pipeline Technology, Inc. Aug 1997 - Present **[A]sequential career chronology**
Boerne, Texas [Texas - F-10282; Texas HUB; SBA 8(a)] ● Pipeline Safety Engineering Consultant

Provide U.S. and international gas and oil pipeline safety engineering consulting services regarding:

- **Code compliance and safety practices regarding U.S. Federal, State, and industry standards for design, construction, operation, and maintenance of gathering, gas transmission, gas distribution, and petroleum pipelines, including anti-drug and LNG standards.**
- **Expert witness in litigation for plaintiffs & defendants; over 20 depositions/court testimony.**
- **Pipeline accident investigations ● Pipeline inspections and safety audits ● Training**

● ***Clients*** include: Koch Pipeline; Conoco Pipeline; Duke Energy; Enogex(x2); Stephens Production; Southwest Gas(x3); DFW Airport; Nicor; El Paso Gas(x2); Sonat Exploration; Tejas Power; Grey Forest Utilities; Southern Union Gas; Pacific Gas & Electric(x3); Oasis Pipeline; Kinder Morgan Pipeline(x2); NI Gas; Nat'l Fuel Gas; Allianz insurers; Port of Brownsville; Atmos Energy; Public Service Electric & Gas; Salt River Project; Messer Constr; Columbia Gas Trans(x2); Dominion Peoples Gas(x2); Dept. of Defense; Dominion E. & P.; Transwestern Pipeline(x7); Belle Fourche Pipeline; City of Palo Alto; Equitable Production; Columbia Gulf Trans; Butte Pipeline; Airmaster Equipment; Bridger Pipeline; Posen Constr; GTS Technologies; PHMSA; TD Int'l; Eagle Pipeline Constr; Centurion Pipeline; Brewski Constr; Diamond Generating Corp(x2) ***Int'l Clients*** incl: Ente Nacional Regulador de Gas, Argentina; Puerto Rico Energy Power Authority; McKinsey & Co, Russia; Sofregaz, France; Organización Iberoamericana de Protección Contra Incendios, Colombia. ***Testified:*** CA Public Utilities Comm; CA Energy Resources Conservation & Development Comm.; AR Public Service Comm; AZ Corp. Comm; PHMSA NOPV Hearing. ***Associates*** incl.: Viadata; Booz Allen Hamilton, Inc(x2); Kiefner & Assoc; D. Peterson & Assoc; Protection Engr Consultants

● ***Over 100 projects*** include gas and oil pipeline consulting, training, & litigation regarding:

- ♦ cathodic protection, construction, seam failure, corrosion, emergency response, excavation damage, gathering lines, leakage surveys, O&M Manuals, One-Call Systems, ILI pig, IMP, 80% SMYS, pipeline markers, pipe locating, temporary pipeline marking, MAOP, training, customer meters, coating, hydro testing, pipeline integrity, offshore valves, setback, hot-tap, public awareness, depth of cover, ROW easement, design & construction, propane, Subject Matter Expert, pipeline route, statistics, regulatory jurisdiction, DIMP, pre-1971 pipelines
- ♦ Pipeline CIPP technology assessment in France & Belgium for determining market in U.S.
- ♦ Design and construction consultant on proposed gas transmission pipeline in Puerto Rico.
- ♦ Pipeline training in Colombia. ♦ Pipeline inspection & research in Argentina and England.

Office of Pipeline Safety June 1983 - August 1997 **[B]**

Research & Special Programs Admin. (now PHMSA)
Department of Transportation
Washington, D.C.

- Deputy Assoc Administrator for Pipeline Safety
- Director, Standards and Technology
- Regional Chief, Southern Region (Atlanta)
- Pipeline Inspector, Western Region (Denver)

September 1971 - June 1980 **[E]**

- Acting Director/Director/Associate Bureau Dir.
- Deputy Director
- Compliance Officer

Directed the U.S. national program for the safe, reliable, and environmentally sound transportation by over 2 million miles of petroleum and gas pipelines in the country, including:

- Directed issuance and enforcement of design, construction, operation, and maintenance regulations for all gathering, gas transmission, gas distribution, and petroleum pipelines, incl. anti-drug & LNG regulations (49 CFR Parts 190 thru 199).
- Directed cooperative Federal/State intrastate pipeline safety program & grant-in-aid program.
- Directed or co-directed over 60 pipeline research projects (Attachment A).
- Directed DOT inspection of construction & initial operation of the Trans-Alaska Pipeline System.
- Testified on pipeline safety before U.S. Congress, state legislatures, and U.N. organization.
- Pipeline failures, deaths, & injuries were each reduced about 50% during 23 years with program.
- Charter member of Federal Senior Executive Service [ES-4].
- Personally conducted projects, include:
  - ♦ wrote & interpreted regulations.
  - ♦ inspected pipelines for regulatory compliance.
  - ♦ investigated & determined cause of pipeline failures.
  - ♦ developed initial pipeline inspection and compliance program.
  - ♦ prescribed and conducted pipeline safety training at DOT Transportation Safety Institute.

GEO Condor, Inc. October 1981 - June 1983 **[C]**

Denver, CO

- Vice-President, Mktg. & Admin.

Managed marketing & administration of the largest manufacturer of well servicing equipment, including:

- Administered the company's personnel, contracts, budget, and business planning.
- Assisted in the engineering design of fracturing, acidizing, cementing, and blender servicing units.
- Directed domestic & international (Mexico, India, Abu Dhabi, Argentina) marketing of equipment.
- Doubled annual sales the first year to $32 million.

Western Company June 1980 - October 1981 **[D]**

Ft. Worth, TX

- Engineering Manager

December 1964 - September 1971 **[F]**

- Engineering Manager
- Project Engineer

Managed the Engineering Department of the second largest oilfield well servicing company in the country ($650 million annual revenue; over 6,000 employees), including:

- Design of oilfield pumps, hi pressure piping, offshore fracturing/cementing skids, & plant facilities.
- Design of fracturing, acidizing, blenders, cementers, inland barges, & other servicing units.
- Meeting "management by objectives" goals that lowered well servicing unit manufacturing costs by 15%, equipment operating costs by 35%, and engineering design costs by 40% over a 3 year period.

- Personally conducted projects, include:
  - ♦ initial re-organizing of Eng. Dept., incl. procedures, records, & drawing and design criteria.
  - ♦ co-designed 300, 500, & 1000 hydraulic horsepower fracturing & cementing pumps.
  - ♦ designed equipment for introducing nitrogen fracturing service to the company.

CHRONOLOGICAL SUMMARY OF CAREER

[A] Aug. 1997 – Present	PanAm Pipeline Technology, Inc.
[B] June 1983 – Aug. 1997	Office of Pipeline Safety, DOT
[C] Oct. 1981 – June 1983	GEO Condor, Inc.
[D] June 1980 – Oct. 1981	Western Company
[E] Sept. 1971 – June 1980	Office of Pipeline Safety, DOT
[F] Dec. 1964 – Sept. 1971	Western Company
[*] Jan. 1958 – Dec. 1964	TX Hwy Dept. (1½ yrs.); Corps of Engrs. (1½ yrs.); Grad school; Ling-Temco-Vought Aeronautics (2½ yrs.)
[*] Sept. 1953 – Aug. 1955	U.S. Army; PFC; Bad Kissingen, Germany; honorable discharge

EDUCATION

M. Eng. in Civil Engineering	Texas A&M University/College Station (with honors)	May 1962
B.S. in Petroleum Engineering	University of Texas/Austin	Jan. 1958
A.A. in Pre-Engineering	Texas Southmost College/Brownsville (with honors)	May 1953

SPECIAL SKILLS OR RECOGNITION, include

- Fluent in Spanish.
- Licensed Professional Engineer in Texas (#23146 - since 1964) & Colorado (#21046 - since 1983).
- Published over 20 articles, including: hydraulic systems, pneumatic systems, LNG, cement blender, pipeline regulations, offshore pipeline standards, & underground gas storage (Attachment B).
- Presented speeches regarding pipeline safety to virtually every pipeline organization in the country, and before many foreign organizations (Attachment C).
- Public Member of DOT Technical Hazardous Liquid Pipeline Safety Standards Committee (pipeline experts appointed by Secretary of Transportation to advise DOT on pipeline regulations).
- Member of pipeline research committees in the NRC of the National Academy of Engineering.
- Role model in "Making It in Engineering" (ASME brochure on careers of accomplished minority engineers distributed to most high schools nationwide).
- TX & VA civic advisory boards, include: Arlington (TX) Hospital, American G.I. Forum, Ft.Worth Boys Club, Ft.Worth United Way, Ft.Worth Human Relations Comm., Virginia Advisory Board to U.S. Comm. on Civil Rights, Sembradores de Amistad Educational Foundation

PROFESSIONAL ORGANIZATIONS, include

- International Standards Organization (pipeline technical committees)
- ASME Pipeline Safety Research Committee
- Gas Piping Technology Committee (ANSI Z-380)
- Integrity Management Task Force, Gas Piping Technology Committee (ANSI Z-380)
- American Society of Civil Engrs; Society of Petroleum Engrs; Nat'l Society of Professional Engrs.

Attachments available upon request 01/15/2012

ATTACHMENT A – RESEARCH PROJECTS

Technical and Research Reports Prepared Under My Direction/Co-Direction while Manager of Standards & Technology, Deputy Director, or Director, include:

● 1973	
1. Analysis of Pipeline Failure Statistics.	Univ. of OK Research Inst.
2. Rapid Shutdown of Failed Pipeline System and Limiting Pressure to Prevent Pipeline Failure Due to Overpressure.	Mechanics Research Inst.
●1974	
3. Technology and Current Practices for Processing, Transferring and Storing Liquefied Natural Gas.	A.D. Little, Inc.
4. Pipeline Industry's Practices Using Plastic Pipe in Gas Pipeline Facilities and the Resulting Safety.	Toups Engineering, Inc.
5. Study of the Properties of Numerous Odorants and Their Effectiveness in Various Environmental Conditions to Alert People to the Presence of Gas.	Institute of Gas Technology
6. Study to Evaluate the Tools and Procedures for Assessing the Safety of Existing Gas Distribution Systems.	AMF, Inc.
7. Study of Current Practices, Technology Problems, and Recommendations Relating to Overall Safety of Gas Distribution Systems.	AMF, Inc.
8. Transporting Highly Volatile, Toxic, or Corrosive Liquids.	Battelle Research Labs
●1975	
9. Ferrous Pipeline Corrosion Processes, Detection, and Mitigation.	
●1976	
10. Hydrogen Stress Cracking and Hydrogen Embrittlement on Gas and Liquid Pipe Line Systems.	AMF, Inc.
11. Stress Corrosion Cracking and Corrosion Fatigue in Gas and Liquid Pipeline Systems.	AMF, Inc.
12. Offshore Pipeline Facility Safety Practices.	Dravo-Van Houten, Inc.
13. Study to Evaluate the Effectiveness of Programs for the Prevention of Damage to Pipelines by Outside Forces.	IIT Research Institute
14. Transportation of Liquefied Natural Gas.	
15. Explosion Hazards Associated with Spills of Large Quantities of Hazardous Materials.	
16. Summary of LNG Safety Research.	A.D. Little, Inc.

17. Consideration of Fracture Mechanics Analysis and Defect Dimension Measurement for Trans-Alaska Pipeline.	Battelle Research Labs
●1977	
18. Alaska Pipeline Aboveground Support System Analysis.	National Bureau of Standards
●1978	
19. Arctic Offshore Pipelines.	
20. Pipeline Emergency Response Safety Training Program.	National Fire Protection Assoc.
21. Transport of Solid Commodities via Freight Pipelines.	
●1979	
22. Factors Affecting the Safety of Arctic Pipelines.	Woodward-Clyde, Inc.
23. Analysis of the Pneumatic Burst Large Seamless Steel Vessels in Natural Gas Service.	
24. U.S. Coast Guard Liquefied Natural Gas Research at China Lake.	U.S. Navy & A.D. Little, Inc.
25. Experiments Involving Pool and Vapor Fires from Spills of Liquefied Natural Gas on Water.	A.D. Little, Inc.
26. Evaluation of Existing Pipelines with Respect to Corrosion Control.	Harco, Inc.
27. An Analysis of Natural Gas Master Meter Systems from Federal Perspective.	Office of Pipeline Safety
28. Fitness-For-Purpose Criteria for Pipeline Girth Weld Quality.	
●1980	
29. Damage and Confinement in Offshore Pipelines.	Cal Tech University Research
●1987	
30. Mandatory Quality Assurance Programs for Pipeline Operators.	Office of Pipeline Safety
31. Assessing the Impact of Extending Federal Excavation Damage Prevention Program Regulations to Cover Hazardous Liquid Pipelines	Volpe National Transportation Systems Center.
32. A Safety Evaluation of Gas Pipelines Operating Above 72 Percent of SMYS.	Office of Pipeline Safety
33. An Examination of Outside Forces Damage to Natural Gas Pipelines	Volpe National Transportation Syst. Center
●1988	
34. Unregulated Hazardous Liquids Pipeline Transport -	Volpe National

A Listing of Pipelines, Products Transported, and Pipeline Operators.	Transportation Syst. Center
35. Inactive Services, Regulatory Need.	Office of Pipeline Safety
36. Pipelines in Road Casings, Report # 87-6	Office of Pipeline Safety
●1990	
37. Joint Task Force Report on Offshore Pipelines.	Office of Pipeline Safety
38. An Examination of the Feasibility of Regulating Excavators.	Volpe National Transportation Syst. Center
●1991	
39. Emergency Flow Restrictive Devices Study.	Volpe National Transportation Syst. Center
●1992	
40. Instrumented Internal Inspection Devices.	Office of Pipeline Safety
41. Assess the need for an improved inspection program for master meter systems.	Office of Pipeline Safety
●1994	
42. Improving the Safety of Marine Pipelines.	Marine Board of Nat'l Research Council
● 1995	
43. Study: Remote Control Spill Reduction Technology.	Volpe National Transportation Syst. Center
44. Risk management within the liquid pipeline industry.	Liquid Risk Management Quality Team
45. Risk management within the gas pipeline industry.	Risk Management Quality Team
46. Natural Disaster Study (Task 1)	Federal Emergency Mgmt. Admn.
● 1996	
47. Underground Hydrocarbon Storage Facility - Survey Summary.	LRL Sciences, Inc.
48. Strategies for Creating a National Mapping System.	OPS/API/AGA/INGAA
49. Natural Disaster Study, National Pipeline Risk Index Technical Report (Task 2)	Federal Emergency Mgmt Admn.
50. Natural Disaster Study, National Pipeline Consequence Index Technical Report (Task 3)	Federal Emergency Mgmt. Admn.
51. Natural Disaster Study, High Hazard, High Consequence Pipeline Technical Report (Task 4)	Federal Emergency Mgmt. Admn.
● 1997	

52. Recommendations for design, construction, operation and maintenance of above ground pipeline tanks for the storage of hazardous liquids.	Texas Transportation Inst. Texas A&M Univ.
53. Study of offshore pipelines to determine pipeline conditions and develop potential methods and intervals for periodic inspections.	Texas Transportation Inst. Texas A&M Univ.
54. Study regarding appropriateness of applying leak-before-rupture concepts to the design and operating pressure limits of pipelines.	Texas Transportation Inst. Texas A&M Univ.
55. Study regarding acceptance levels for dents in onshore pipelines.	Texas Transportation Inst. Texas A&M Univ.
56. Study regarding the probability and consequences of pipelines being affected by natural disasters and propose mitigative measures.	Texas Transportation Inst. Texas A&M Univ.
57. Study to evaluate and develop magnetic flux leakage in-line inspection technology for detecting mechanical damage to pipelines.	Battelle, Southwest Research Inst. and Iowa State Univ.
58. Analysis of inspection, compliance, and inspection prioritization processes of the Office of Pipeline Safety.	Oak Ridge National Laboratories
59. Evaluation of the effectiveness of a 20% pressure reduction after a pipeline failure.	General Physics Corporation
60. Study of pipeline distribution system rehabilitation methods.	General Physics Corp.
61. Pipeline Accident Effects for Natural Gas Transmission Pipelines.	New Jersey Institute of Technology
62. Pipeline Accident Effects for Hazardous Liquid Pipelines.	New Jersey Institute of Technology
63. Pipeline Accident Consequences for Natural Gas and Hazardous Liquid Pipelines.	New Jersey Institute of Technology
64. Comparison of U.S. with Foreign Pipeline Land Use and Siting Standards and Maintenance Rehabilitation	New Jersey Institute of Technology
65. Assessment of controller training and SCADA use at Colonial Pipeline Company.	General Physics Corporation
66. Review of Recommendations on the Transportation Safety Institute.	Oak Ridge National Laboratories

Attachment B & C – Speeches and Articles

Cesar de Leon, P.E.

Speeches and Presentations, include:

1. 1976 -1979 (annually)	API Pipeline Conference
2. 1976 – 1980 & 1988 – 1990	American Gas Association, Annual Trans and Distribution Conference
3. 1978, 1980	Society of Gas Operators
4. 1978 – 1980 (annually)	Southern Gas Association
5. 1976 – 1980 (annually)	LNG Conference; Cryogenic Society of America
6. 1976 – 1980 & 1986	Georgia Gas Association; Texas Gas Association; Tennessee Gas Association; Kentucky Gas Association
7. 1976 – 1979 (annually)	American Public Gas Association
8. 1994	American Gas Association/Mexican Gas Association Conference on Environmental Quality; (El Papel del Gas Natural en el Medio Ambiente en Norte America); Mexico City
9. 1976 – 1979 (annually)	Pipeline Contractors Association
10. March 2006	American Gas Association - Natural Gas Claims and Litigation Association Annual Meeting; San Diego "Revisions to Federal Pipeline Safety Public Awareness Regulations"
11. August 2010	Convencion de Ingenieros y Agrimensores; San Juan, Puerto Rico – Historial de accidentes y criterios de seguridad en sistema de distribucion y planta de procesamiento de gas natural

Papers and Articles, include:

1. March 1967	Hydraulics "Unique Hydraulic Controls for Oilfield Blender"
2. Nov. 1973	Transactions, American Society of Metals "Development of DOT Pipeline Safety Regulations and Future Programs"

3. Sept. 1975	Transactions, Ohio Gas Association "Current Programs in Gas Pipeline Safety"
4. May 1976	Transactions, Cryogenic Society of America, CRYO '78 "Safety Codes and Regulations Involved in Transporting LNG"
5. May 1976	Gas Industries "Reminder Issued by OPSO on Corrosion Control Deadlines"
6. May 1976	Transactions, American Gas Association "Major Results Developed in Department's Study on Gas Pipelines"
7. Sept. 1976	Gas Digest "Plastic Pipe in Pipeline Facilities"
8. Oct. 1978	Transactions, LNG Terminals and Safety Symposium, Cryogenic Society of America "Overview of Development of LNG Facility Regulations"
9. Feb. 1979	Pipeline Welding and Inspection Conference "Overview of Pipeline Welding Policy"
10. Feb. 1982	Drill Bit "Good Slurry Blending Enhances Frac"
11. April 1992	Pipeline and Gas Journal "Planned and Proposed Pipeline Regulations"
12. Aug. 26-28, 2002	Western Pipeline Regional Gas Conference; Tempe, AZ "Preparing for OPS Gas Pipeline Safety Audit"
13 & 14. 1999 – 2009 (continuous)	WinDOT, The Pipeline Safety Regulations for Windows; Viadata, Inc.; www.viadata.com "History and Implementation of Pipeline Safety Regulations" & "Waivers of Pipeline Safety Regulations"
15. 1999 – 2009 (continuous)	WinDOT, The Pipeline Safety Regulations for Windows; Viadata, Inc.; www.viadata.com "Using the Pipeline Safety Standards in Risk Management"

CHAPTER 1

APPENDIX D

CURRICULUM VITAE OF

JAMES B. HOWE

James B. Howe, PE

Senior Vice President - Gas Engineering & Asset Management

Mr. Howe is Senior Vice President and Manager of CHA's Gas Engineering and Asset Management Group. He has extensive experience in engineering, regulatory compliance, investment planning and resource management.

Prior to joining CHA, Mr. Howe was National Grid's Senior Vice President of Network Strategy, US Gas Distribution. His 35 years of experience include asset management planning; engineering; operations; and implementing tools that provide consistent asset performance assessments, including risk assessment models, work prioritization, and PAS 55 accreditation.

Education
Worcester Polytechnic Institute, MA/B.S./Civil Engineering/1977
Rensselaer Polytechnic Institute, NY/M.B.A./Business/1991

Professional Registration and Activities
PE-NY
Northeast Gas Association
American Gas Association

Representative Project Experience Includes:

Transmission Records Review
Directed a comprehensive review of transmission asset records for two major clients to ensure pipeline integrity, identify gaps in record retention, and validate MAOP.

Organizational and Operational Assessments
Directed assessments of clients' organizations and operational processes. Recommended performance improvement opportunities.

Pacific Gas & Electric
Provided organizational system design/implementation services and operational process assessments. Also provided expert witness testimony in regulatory proceedings.

Vermont Gas Systems, Inc., Middlebury, VT Extension
Managed the preliminary engineering for a major system expansion, including route layout, hydraulic analysis, conceptual estimates, options analysis and public engagement support.

National Grid Corporate Services LLC
From 1977 to 2011, Mr. Howe was employed in various management and executive positions for National Grid and its predecessor company, Niagara Mohawk. During his career, he held various roles involving the following:

- Responsible for policies and procedures development, regulatory compliance, investment planning, resource management, engineering, and gas control center operation for a service area covering four states. The system encompassed more than 36,000 miles of pipeline and 3.5 million customers. Mr. Howe directed $700 million in 2010/11 capital spending.
- Directed National Grid's investments in Iroquois Pipeline, Millennium Pipeline, and NE Gas Marketing companies.
- Directed National Grid's US Gas business (Upstate NY and Rhode Island), which included 750+ employees.
- Lead gas operations integration for National Grid's KeySpan acquisition.
- Provided oversight for National Grid's internally-focused strategic plan as well as communications, rebranding, staff and governance meetings/structure, reporting, and various other functions.
- Directed procurement, materials management, accounts payable operations,

which were standardized across the US and aligned with UK operations.

- Oversaw account management, electric and gas distribution design, consumer relations, and community relations operations.
- Managed gas operations & construction, field service, scheduling and dispatch, distribution design, consumer relations for 600+ employees.
- Managed the electric line department, including field operations and construction as well as storm response.
- Responsible for project scoping, design, bidding & award, construction support, and closeout for large construction projects on various hydroelectric generating facilities.