

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA

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.

Rulemaking 11-02-019  
(Filed February 24, 2011)

**MOTION OF THE DIVISION OF RATEPAYER ADVOCATES  
FOR A RULING DIRECTING PACIFIC GAS AND ELECTRIC COMPANY  
TO PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL PLANS  
FOR THE DEVELOPMENT AND IMPLEMENTATION OF ITS UPDATED  
PIPELINE SAFETY PLAN ("PSEP")**

KAREN PAULL  
TRACI BONE  
Attorneys for the Division of Ratepayer  
Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-2048  
Email: [tbo@cpuc.ca.gov](mailto:tbo@cpuc.ca.gov)

July 8, 2013

## Table of Contents

I.	INTRODUCTION AND SUMMARY .....	1
II.	DISCUSSION.....	3
	A. PG&E HAS A HISTORY OF FAILING TO PERFORM QA/QC.....	3
	1. NTSB and IRP Report Findings.....	3
	2. QA/QC Problems with PG&E’s Initial PSEP .....	5
	B. WHILE PG&E REPRESENTS IT IS PERFORMING QA/QC FOR MAOP VALIDATION, ITS EFFORTS FOR THE BALANCE OF THE UPDATED PSEP APPEAR INSUFFICIENT .....	7
	C. IF THE COMMISSION WANTS TO EXPEDITE IMPLEMENTATION OF THE PSEP, IT IS ESPECIALLY IMPORTANT TO ENSURE THAT THE UPDATED PSEP BE AS ACCURATE AS POSSIBLE PRIOR TO COMMISSION REVIEW .....	11
	D. TO PROVIDE SAFE SERVICE, PG&E MUST EMPLOY QUALITY ASSURANCE THROUGHOUT ITS PSEP OPERATIONS .....	12
III.	CONCLUSION .....	13

## I. INTRODUCTION AND SUMMARY

In accordance with Rule 11.1 of the Commission's Rules of Practice and Procedure, the Division of Ratepayer Advocates ("DRA") hereby requests that the Commission direct Pacific Gas and Electric Company ("PG&E") to provide documentation of the quality assurance and quality control processes used at each step in the development and implementation of its pending "update" to the Pipeline Safety Enhancement Plan ("PSEP") approved by the Commission last December in Decision ("D.") 12-12-030.

Quality assurance has been defined as "all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service."<sup>1</sup> Quality assurance and quality control procedures are a set of fundamental requirements in any complex investigation, engineering, or construction project, where opportunities exist for mistakes and miscalculations to propagate undetected throughout a project. It is especially important to have a solid plan for controlling errors where public safety is at risk. While an effective QA plan will significantly reduce errors it is prudent to assume that some errors will still occur in complex projects. Those errors should be caught and promptly corrected by quality control procedures. A well-crafted QA/QC plan is an indispensable risk reduction tool that should provide steps for both detecting and correcting residual errors before safety is compromised. It is essential to public safety as well. Accordingly, DRA requests that the Commission direct PG&E to provide a Quality Assurance and Quality Control Plan (QA/QC Plan) to ensure that the Commission and the public can have confidence that the PSEP will be carried out with minimal errors. The QA/QC Plan should cover

---

<sup>1</sup> See D.88-12-083, 1988 Cal. PUC Lexis 886, fn. 6 (on page 6 of Lexis version) (citing the definition of quality assurance in the federal regulations governing the construction of nuclear power plants). The decision recounts a history of problems with PG&E's quality assurance programs for the design and construction of the Diablo Canyon nuclear power plant. Among other things, the decision recounts that: "The Nuclear Regulatory Commission suspended the operating license for Diablo Canyon on November 19, 1981, and mandated that PG&E develop an Independent Design Verification Program to review the design of all safety-related structures, systems, and components." (Id. at p. 11.) Although the PSEP involves PG&E's gas transmission system rather than a nuclear power plant, DRA can think of no reason that quality assurance should be defined any differently in the context of a major gas transmission project.

both (1) the *development* of the updated PSEP (which PG&E will soon submit to the Commission in an application pursuant to D.12-12-030) and (2) the *implementation* of the updated scope of PSEP that is authorized by the Commission.

DRA also requests that the Commission commit to a careful review of the Updated PSEP, including (1) the quality assurance and quality control elements of the project, and (2) the underlying data used to develop the updated PSEP.

In Decision (“D.”) 12-12-030, approving PG&E’s PSEP, the Commission ordered PG&E to “file an expedited application 30 days after completing its validation of Maximum Allowable Operating Pressure (“MAOP”) and pipeline records search work.” The decision directed PG&E to include in the Updated PSEP Application a corrected and updated pipe segment database (“PSEP Database”)<sup>2</sup> and to “update its Implementation Plan authorized revenue requirements and related budgets.”<sup>3</sup> We will refer to this updated implementation plan to be submitted by PG&E consistent with this direction as the “Updated PSEP Application”.

Pursuant to D.12-12-030, the Energy Division held a workshop on March 26, 2013 for PG&E and interested parties to discuss “[t]he specific showing that PG&E will be required to provide in its application.”<sup>4</sup> During the March Workshop, and in follow-up data requests, DRA has sought to understand how PG&E will ensure that the Updated PSEP will be based on accurate information and is consistent with CPUC directives, industry best practices, and relevant quality standards. Achieving these goals requires a quality assurance (“QA”) plan that defines proactive processes to prevent errors, and the quality control (“QC”) procedures that will be used to uncover and correct errors on a reactive basis. This Motion refers to all QA and QC plans, processes, procedures, data collection, data analysis, and reporting collectively as “QA/QC Activities.”

PG&E represents that it is performing QA/QC activities as part of its validation of the maximum allowable operating pressure (“MAOP validation”), and it has provided

---

<sup>2</sup> D.12-12-030, *mimeo*, p. 115.

<sup>3</sup> D.12-12-030, *mimeo*, Ordering Paragraph 11, p. 129.

<sup>4</sup> D.12-12-030, *mimeo*, p. 115.

documentation to DRA that explains that effort. However, the Commission, in D.12-12-030, required PG&E to update the PSEP revenue requirement figures as part of its Updated PSEP Application and this requires performing additional steps after MAOP validation. All seven steps required to develop the Updated PSEP are depicted in Attachment A to this Motion. Despite several requests for information about QA/QC plans for its PSEP, PG&E has not provided to DRA evidence that it has a comprehensive QA/QC Plan, or that it is performing significant QA/QC activities in developing the Updated PSEP for the steps that follow MAOP validation.

Because it is critical that PG&E have an adequate QA/QC Plan for the extensive pipeline work it is undertaking, DRA requests that the Commission issue an order directing PG&E to perform QA/QC activities at each of the steps shown in Attachment A, in accordance with a QA/QC Plan that must be included in its Updated PSEP Application. The QA/QC Plan should also address implementation of the PSEP work authorized by the Commission. DRA also requests that the Commission have its staff or consultants perform independent QC activities for the first five steps.<sup>5</sup>

A proposed ruling consistent with this Motion is attached as Attachment B.

## **II. DISCUSSION**

### **A. PG&E Has a History of Failing To Perform QA/QC**

#### **1. NTSB and IRP Report Findings**

PG&E's historic lack of quality assurance and quality control procedures have been extensively noted and criticized by both the National Transportation Safety Board ("NTSB") and the Independent Review Panel ("IRP") hired by this Commission. The NTSB Report blamed the installation of the defective segment in Line 132 on PG&E's lack of quality assurance and control in 1956:

---

<sup>5</sup> DRA commits to performing QC activities on Steps 6 and 7 of PG&E's updated PSEP plan (see Attachment A). Steps 6 and 7 relate to the cost of the Updated PSEP.

.... the probable cause of the [San Bruno explosion] was the Pacific Gas and Electric Company's ... (1) inadequate quality assurance and quality control in 1956 during its Line 132 relocation project, which allowed the installation of a substandard and poorly welded pipe section with a visible seam weld flaw that, over time grew to a critical size, causing the pipeline to rupture during a pressure increase stemming from poorly planned electrical work at the Milpitas Terminal...<sup>6</sup>

The NTSB found that PG&E's poor quality control was also a factor in the Rancho Cordova installation that resulted in an explosion in 2008, and in PG&E's inadequate emergency response after that explosion:

... the NTSB notes that several of the deficiencies revealed by this investigation, such as poor quality control during pipeline installation and inadequate emergency response, were also factors in the 2008 explosion of a PG&E gas distribution line in Rancho Cordova, California.<sup>7</sup>

The IRP Report noted the importance of quality assurance, which in data projects includes systematic checks for accuracy at multiple stages after data entry has been performed under quality assurance requirements. It recognized that PG&E's failure to have any quality assurance of its pipeline records after the initial data entry (which was obviously not subject to quality control) allowed the misinformation about Line 132 to persist in the database for decades:

Data management is important, but it is just one process in the chain. Quality assurance is the framework that runs throughout the entire process. A review by experienced piping engineers who question assumptions and demand substantiation should be a part of the quality assurance for the threat identification and risk ranking process. At any number of process steps in PG&E's threat identification and ranking processes, a casual review by an experienced piping engineer should have flagged the mischaracterization of the pipe seam type for the Line 132 segments that are the subject of this investigation.<sup>8</sup>

---

<sup>6</sup> NTSB Accident Report NTSB/PAR-11/01 PB2011-916501, adopted August 30, 2011, p. xii.

<sup>7</sup> See, e.g., NTSB Report, p. 116.

<sup>8</sup> Report of the Independent Review Panel San Bruno Explosion, June 24, 2011, p. 62 (*emphases added*).

This theme of PG&E's lack of QA/QC activities runs throughout the IRP Report.<sup>2</sup>

Inadequate quality assurance and quality control on major projects is not a new problem for PG&E, and it is not limited to its gas operations. Inadequate quality assurance and quality control led to safety problems and enormous cost overruns during PG&E's construction of the Diablo Canyon nuclear power plant in the 1980s. In its decision approving a multibillion dollar settlement in that case, the Commission acknowledged Nuclear Regulatory Commission findings that PG&E had inadequate quality assurance practices. The decision also includes a summary of DRA testimony regarding PG&E's inadequate quality assurance and quality control on the project.<sup>10</sup> The sad story of the Diablo Canyon nuclear plant should serve as a reminder that inadequate QA/QC can endanger the public and cost ratepayers and shareholders literally billions of dollars.

## **2. QA/QC Problems with PG&E's Initial PSEP**

In its original PSEP application, PG&E requested funding for a Program Management Office (PMO), including a Quality Assurance/Quality Control (QA/QC) team:

---

Available at: [http://www.cpuc.ca.gov/PUC/events/110609\\_sbpanel.htm](http://www.cpuc.ca.gov/PUC/events/110609_sbpanel.htm)

<sup>2</sup> See, e.g., IRP Report, p. 8 ("The lack of an overarching effort to centralize diffuse sources of data hinders the collection, quality assurance and analysis of data to characterize threats to pipelines as well as to assess the risk posed by the threats on the likelihood of a pipeline's failure and consequences.") and p. 62 ("PG&E lacks robust data and document information management systems and processes. These hinder the collection, quality assurance/quality control, and analysis of data to fully characterize threats to pipelines as well as assess the risk posed by the threats on the likelihood of a pipeline's failure.") and p. 72 ("The fact the line pipe DSAW seam type was incorrectly recorded as 'seamless' is symptomatic of PG&E's inadequate quality control and quality assurance management. The failure to properly document the seam type designation as DSAW, rather than seamless is not sufficient in itself to have prevented this incident, but had the records been more complete and the characterization been part of a more refined threat identification process, then the tragedy might have been avoided. Without a quality assurance program embedded in the integrity management process— and a feedback loop when anomalies are uncovered or pipelines do fail, mistakes happen. Unheeded lapses in the end-to-end process of pipeline integrity can lead to accidents like San Bruno.").

<sup>10</sup> See D. 88-12-083 in Applications 84-06-014 and 85-08-025, 1988 Cal. PUC LEXIS 886; 30 CPUC2d 189; 99 P.U.R.4th 141 (December 19, 1988, amended June 16, 1989).

“ . . . responsible for establishing processes and procedures to evaluate overall project and program performance on a regular basis to provide confidence the projects adhere to relevant quality standards. This team will also monitor specific project results and perform test procedures on project components to determine if they comply with *relevant quality standards*.”<sup>11</sup>

Ratepayer funding for this QA/QC team was authorized by D.12-12-030.<sup>12</sup> In its original PSEP application, PG&E did not define the *relevant quality standards* it used in developing the application, nor did it provide the QA/QC processes and procedures used. DRA therefore performed its own QC review of steps 4, 5, 6, and 7 depicted in Attachment A. As the record of this proceeding shows, multiple errors were found in each of these steps, resulting in mis-prioritization of segments, inefficient project design, excessive PSEP costs, and misallocation of costs between ratepayers and PG&E shareholders.<sup>13</sup> Some of these errors result from the use of pipeline feature and pressure test data known to be flawed, and D.12-12-030 aimed to eliminate these errors by requiring the Update Application based on data corrected through the MAOP validation process.<sup>14</sup> But other errors were not attributable to incomplete or flawed segment level data, and these errors will not be resolved by the MAOP validation process. In particular, many of the outcomes (i.e. whether to test or replace a line segment) in PG&E’s initial PSEP Database were inconsistent with PG&E’s stated Decision Tree logic. In addition, high priority Phase 1 projects included low priority Class 1 and 2 non-HCA segments in contradiction to clear direction from the CPUC.<sup>15</sup> The result of these errors was delayed

---

<sup>11</sup> PG&E Application dated August 26, 2011 in this rulemaking, Chapter 7, p.7-11, emphasis added.

<sup>12</sup> PG&E’s PMO request for \$34.8 million was reduced in D.12-12-030 to \$28.9 million due to blanket adjustments to the 2011 and 2012 budget requests and escalation.

<sup>13</sup> A summary is provided in DRA’s Opening Brief in this proceeding dated May 14, 2012. See Section IV (A), pages 49-67. DRA’s review methods and detailed findings were cataloged in the testimony of DRA witness Roberts in Hearing Exhibit 144. Errors related to steps 4, 5, 6, and 7 are found in sections 3, 4, 5, and 6 of this testimony respectively. These errors were discovered as part of DRA’s efforts to determine the reasonableness of PG&E’s cost request, rather than resulting from a rigorous QC evaluation, and thus are not a comprehensive catalog of all errors.

<sup>14</sup> D.12-12-030. See pp. 114-115 and Finding of Fact 34, p.119.

<sup>15</sup> D-11-06-017, Ordering Paragraph 4, p. 31. This included more segments than adjacent segment deemed to be justified by D.12-12-030, Conclusion of Law 20, p. 123.

mitigation of some of the highest priority pipelines, and an increase in the scope and cost of Phase 1 of the PSEP. These errors were not uncovered in the limited review of the PSEP Application by Jacobs Consultancy, under the direction of the Commission's Consumer Safety and Protection Division ("CPSD"), which is now called the Safety and Enforcement Division ("SED").<sup>16</sup>

**B. While PG&E Represents It Is Performing QA/QC for MAOP Validation, Its Efforts for the Balance of the Updated PSEP Appear Insufficient**

As stated in D.12-12-030, "the purpose of accurate records is not limited to calculating MAOP."<sup>17</sup> Given DRA's time-consuming experience working with the PSEP data in PG&E's original application, DRA raised the issue of how to ensure the quality of the Updated PSEP at the March 2013 Workshop. During this Workshop, DRA presented a flow chart depicting its understanding of the development process for the Updated PSEP. Attachment A reflects a revised version of that flow chart, which depicts seven stages in the development of the Updated PSEP, from the MAOP validation at Step 1, to the calculation of revised ratepayer PSEP obligations at Step 7. Steps 1 to Step 5 as depicted in Attachment A result in a database, the PSEP Database, which determines both the prioritization and cost of PSEP projects.<sup>18</sup> In each of these five steps, pipeline feature and pressure test data is entered, manipulated, supplemented, or otherwise revised such that errors can be introduced into the PSEP Database. It is normal practice in database development for some level of QA/QC to be performed whenever data is managed in a manner whereby errors can be introduced. Absent PG&E employing such practices in its development of the PSEP Database, it is possible, and even likely, that PG&E's new PSEP Database – which PG&E intends to rely upon to determine which pipeline segments will be tested and/or replaced, and the priority and cost of that work – will

---

<sup>16</sup> See December 23, 2011 report filed in this docket.

<sup>17</sup> D.12-12-030, p.95.

<sup>18</sup> D.12-12-030 specified the mitigation costs, and cost allocation methods to be used in the Update Application, so pipeline features and pressure test data in the PSEP database are the primary variables driving PSPS costs.

contain significant errors. Clearly, that is not an acceptable outcome from a public safety perspective or a ratemaking perspective.

Using the flow chart, DRA explained its concerns regarding the lack of QA/QC activities proposed by PG&E to prevent errors, detect errors, and correct data for each step of the PSEP Database development process. DRA asked PG&E to provide evidence to DRA documenting the QA/QC activities used in the development of the Updated PSEP, including any written procedures relied upon by PG&E.

PG&E provided its first response to DRA on April 9, 2013. It provided a summary of PG&E's QA/QC process, and two associated procedures, but this response only related to steps 1 and 2 of the Updated PSEP development process, the MAOP validation. In addition, these documents bore no dates, serialized document control numbers, or signatures which would indicate that they were PG&E management-approved procedures. Based on a follow-up DRA data request, PG&E provided more extensive documentation of its QA/QC procedures to DRA on May 17, 2013. The response included nine documents related to MAOP validation, including eight with dates, seven with revised numbers, and five with revision control sheets.<sup>19</sup> While these display inconsistency in document control procedures, and none of the documents are signed or numbered, it does appear that PG&E established QA/QC procedures in 2011 for MAOP Validation, and has updated them through 2012.<sup>20</sup> As with PG&E's first response, these procedures only addressed the first two steps in the development of the Updated PSEP.

DRA's follow-up data request explicitly asked for procedures used to verify the accuracy of the Updated PSEP, and the procedures used to group pipe segments into projects.<sup>21</sup> PG&E response to the first request, which covers all steps in Attachment A, was:

---

<sup>19</sup> A "revision control sheet" is part of a formal procedure or software program which catalogs the history of changes or revisions to the file.

<sup>20</sup> In addition to the lack of dates or revision numbers on some procedures, one document includes a "document version control" sheet rather than the "revision control sheet" used on the other procedures.

<sup>21</sup> See DRA Data Request DRA-TCR-1 dated May 3, 2013, questions 2 and 5.

“PG&E is in the process of documenting procedures that are being used to ensure the PSEP Update Application uses only accurate and complete data. PG&E will provide the procedures when they are finalized and approved.”<sup>22</sup>

This response clearly indicates that PG&E was in the process of documenting actions being performed or that already have been performed, rather than implementing a process that included a proactive QA/QC Plan. This process is not consistent with the basic quality assurance process, which begins with a written plan, followed by actions to accomplish the plan, and finally QC checks to ensure the plan’s goals were achieved. The lack of a documented QA/QC plan when PG&E is this far along in the process of updating the PSEP is a critical shortcoming that must be considered in the review of the quality assurance documents PG&E ultimately provides.

PG&E subsequently provided a procedure titled “Update Filing Work Papers Preparation” dated June 18, 2013, which could guide PG&E PSEP engineers preparing the work papers and aid the Commission and parties in reviewing them.<sup>23</sup> This single procedure fails however to provide the required level of quality assurance for the Update Application for the following reasons:

1. It addresses only one element of the application, workpapers.
2. It does not provide a comprehensive quality assurance plan.
3. It is not approved by the level of management ultimately responsible for pipelines.<sup>24</sup>
4. Where QC activities are provided, insufficient detail is provided.

Regarding the final reason, only three quality control steps are mentioned in the procedure, in each case with a single sentence such as “for quality control, the work of

---

<sup>22</sup> PG&E Response dated May 17, 2013 to DRA Data Request DRA-TCR-1 dated May 3, 2013, question 2.

<sup>23</sup> PG&E Supplemental Response dated May 24, 2013 to DRA Data Request DRA-TCR-1 dated May 3, 2013, question 2.

<sup>24</sup> The document was provided unsigned, but has a signature block for Todd Hogenson, Director of PSEP Engineering. The record in this proceeding including PG&E’s original testimony, rebuttal testimony, and hearing transcripts clearly indicate that Mr. Hogenson is responsible for only one element of PSEP. The procedure also lacked the reference number (e.g. PG&E Hydrostatic Testing Procedure A-37) and/or revision control sheet found on other PG&E management approved documents. PG&E provided a signed copy of this procedure with revision control sheet on July 2, 2013, in response to a DRA request.

the data validator shall be checked by a second person.”<sup>25</sup> While mentioning quality control is a good first step, it fails to provide any guidance to PG&E engineers regarding how to perform quality control, and it fails to document the outcome of the QC checks.

PG&E’s response to DRA regarding procedures used to group pipe segments into projects indicated that “PG&E does not have specific written management procedures to group pipe segments into PSEP projects,” and provided references to the original application where this process is described.<sup>26</sup> In essence, PG&E is reiterating the position it took in the original PSEP proceeding that project design requires the use of engineering judgment, and that this subjective judgment process is not guided by any written procedures. Such a position means that PG&E has no documented QA/QC activities for Step 5 in Attachment A. While D.12-12-030 states that “adjustments [to the mitigations defined by PG&E’s PSEP Decision Tree] based on sound engineering practice...do not require further Commission review,” PG&E has yet to demonstrate that the engineering judgment it applies to the PSEP is equivalent to “sound engineering practice.”<sup>27</sup> PG&E should be required to document the QA/QC activities it will use to ensure that sound engineering practices are consistently applied when designing PSEP projects.

On June 28, 2013, DRA obtained a copy of PG&E’s response to an SED data request related to PSEP quality assurance which indicated that PG&E had many relevant documents it had not provided in response to DRA’s data requests.<sup>28</sup> However, even the 39 documents provided to SED do not appear to provide a comprehensive PG&E management approved QA/QC Plan covering development of the Updated PSEP. PG&E’s response to SED also indicates the following:

---

<sup>25</sup> In the other two cases the line is “the data is reviewed for quality control by an internal analyst.”

<sup>26</sup> PG&E Response dated May 17, 2013 to DRA Data Request DRA-TCR-1 dated May 3, 2013, question 5.

<sup>27</sup> D.12-12-030, Finding of Fact 32, p.119.

<sup>28</sup> It is troubling that PG&E appears not to take seriously the Commission’s Rules of Practice and Procedure and the Public Utilities Code Section 309.5(e) when it provided an incomplete answer to DRA’s data request.

1. PG&E has a document control system in which key procedures are numbered, dated, and subjected to revision control. However, this system is not being used for PSEP documents,
2. PSEP is being implemented using draft procedures still under development,
3. PG&E's QC activities are focused on construction, but are lacking for project engineering or data processing such as creation and maintenance of the PSEP database,
4. PG&E views quality assurance as an auditing function, rather than a proactive process used to ensure first-time quality. PG&E appears to have a lack of understanding of QA/QC.
5. PG&E's QA/QC team includes internal staff, Project Management Office (PMO) staff, and independent quality consultants, but it is not clear who is responsible for the quality of PSEP project engineering or the Update Application.<sup>29</sup>

PG&E's failure to provide QA/QC documentation to date, and the shortcomings of what it has provided, is inconsistent with its recent Compliance Report, which states that "the PSEP PMO since inception has established procedures to independently monitor work performed by employees to ensure its adherence to PG&E standards and thereby assure quality."<sup>30</sup> This report mentions specific construction activities subjected to this independent quality monitoring, but QA/QC activities must address every element of PSEP, including the critical planning and engineering activities used to develop the Updated PSEP and that ultimately drive safety and cost.

**C. If the Commission Wants To Expedite Implementation of the PSEP, It Is Especially Important To Ensure that the Updated PSEP Be As Accurate As Possible Prior to Commission Review**

The Commission directed PG&E to expedite preparation of the Updated PSEP application.<sup>31</sup> While it is important to move forward with the highest priority remedial actions as quickly as possible, successful implementation of the PSEP requires an accurate PSEP Database. The Commission should therefore take all steps reasonably

---

<sup>29</sup> These observations are based on an expedited and limited review by DRA. If PG&E provides its QA/QC plans as part of its Updated PSEP Application as requested in this Motion, the Commission and the parties will be able to review those plans more thoroughly and determine whether they are adequate.

<sup>30</sup> PG&E PSEP Compliance Report filing in R.11-02-019 dated April 30, 2013, p. 16.

<sup>31</sup> D.12-12-030, *mimeo*, p. 115.

necessary to ensure that PG&E provides an accurate Updated PSEP. As discussed above, a primary objective of this Motion is to require PG&E to demonstrate that its PSEP QA/QC Plan and activities are sufficient by documenting them in its forthcoming Updated PSEP application.

However, in light of PG&E's historic quality assurance and quality control failures described above, it is unrealistic to expect PG&E to implement a fully effective quality assurance program while implementing the PSEP. Consequently, the Ruling requested here should also establish independent review of each step in the development of its Update Application. The first five steps in the development of that application as required by D.12-12-030 should be reviewed by Commission staff with the relevant skills (probably SED), with the help of outside experts if necessary.<sup>32</sup> DRA developed methods and tools to independently verify the proposed costs of PSEP projects during its review of the original PSEP application, and commits to reviewing the last two steps of the Update Application (steps 6 and 7) related to costs. Both reviews should use methods that produce statistically significant findings.

**D. To Provide Safe Service, PG&E Must Employ Quality Assurance Throughout Its PSEP Operations**

As previously discussed, PG&E's original PSEP as approved by D.12-12-03- included the creation of a QA/QC team and the establishment of QA/QC procedures and processes. To date, however, PG&E has failed to provide evidence of a comprehensive QA/QC Plan for the Updated PSEP. The Commission should clarify, in its Ruling on this Motion, that PG&E is required to define the relevant quality standards used by the PMO QA/QC team, the processes and processes used, and the results of QC checks for every step in the Updated PSEP, consistent with its obligation pursuant to Section 451 of the Public Utilities Code to provide safe service. PG&E should be reminded – now, while it is developing its Update PSEP -- that Quality Assurance and Quality Control should be systematically employed in all of its PSEP operations. Finally, the Commission's review

---

<sup>32</sup> D.12-12-030, Ordering Paragraphs 8 and 9, pp. 127-128.

of the Updated PSEP Application should include review of the QA/QC Activities to be used during implementation of the plan.

### III. CONCLUSION

DRA respectfully requests that the Commission issue a ruling directing PG&E to provide a plan for performing quality assurance and quality control for every step in the development and implementation of its Updated PSEP. The Updated PSEP as described in Attachment A should include the QA/QC Plan that will be used by PG&E to ensure that the Commission and the public can have confidence that the Updated PSEP is developed and implemented with minimal errors. The QA/QC Plan should provide a clear explanation of the QA/QC plans and processes, including citations to relevant industry standards and established PG&E procedures. It should also list of the names and titles of personnel responsible for carrying out the plan with specific oversight roles. Finally, the Commission should require independent review of the QA/QC Plan presented in the Updated PSEP Application.

A proposed ruling is attached.

Respectfully submitted,

/s/ KAREN PAULL

---

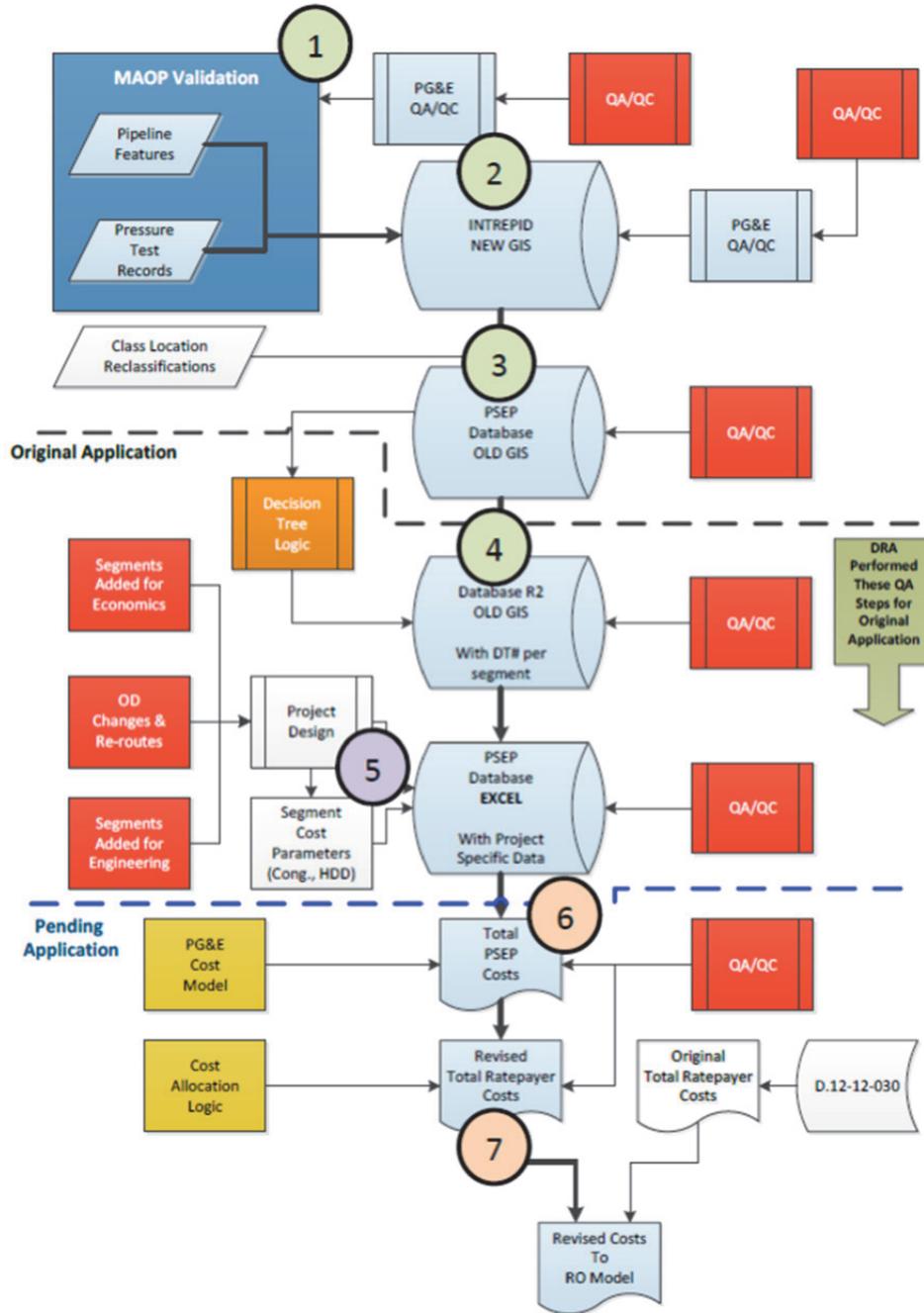
KAREN PAULL

Interim Chief Counsel  
For the Division of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-2630  
Email: [karen.paull@cpuc.ca.gov](mailto:karen.paull@cpuc.ca.gov)

July 8, 2013

# ATTACHMENT A

## PG&E Pipeline Data & PSEP Update Reference Process Flow



## ATTACHMENT B

### PROPOSED RULING DIRECTING PACIFIC GAS AND ELECTRIC COMPANY TO PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL PLANS FOR THE DEVELOPMENT AND IMPLEMENTATION OF ITS UPDATED PSEP

On July 8, 2013 the Division Of Ratepayer Advocates (“DRA”) filed a “Motion Of The Division Of Ratepayer Advocates For A Ruling Directing Pacific Gas And Electric Company To Provide Quality Assurance And Quality Control Plans For The Development And Implementation Of Its Updated Pipeline Safety Plan (“PSEP”)” (“DRA Motion”). The motion is granted.

Decision (“D.”) 12-12-030, approving PG&E’s PSEP, ordered PG&E to “file an expedited application 30 days after the conclusion of its MAOP validation and records search work that includes an updated pipe segment database” (“Updated PSEP Application”).<sup>1</sup> Pursuant to D.12-12-030, Energy Division held a workshop on March 26, 2013 for PG&E and interested parties to discuss “[t]he specific showing that PG&E will be required to provide in its application” (“March Workshop”).<sup>2</sup>

The DRA Motion describes its good faith efforts at the March Workshop and thereafter to understand PG&E’s plans to perform quality assurance and quality control to ensure that its Updated PSEP is based on accurate information and includes adequate QA/QC Plans. DRA has demonstrated good cause for a Commission ruling on this matter.

PG&E’s historic lack of quality assurance and quality control procedures have been extensively noted and criticized by both the National Transportation Safety Board (“NTSB”) and the Independent Review Panel (“IRP”) hired by this Commission. The NTSB Report blamed the installation of the defective segment in Line 132 on PG&E’s lack of quality assurance and control in 1956:

---

<sup>1</sup> D.12-12-030, *mimeo*, p. 115.

<sup>2</sup> D.12-12-030, *mimeo*, p. 115.

... the probable cause of the [San Bruno explosion] was the Pacific Gas and Electric Company's ... (1) inadequate quality assurance and quality control in 1956 during its Line 132 relocation project, which allowed the installation of a substandard and poorly welded pipe section with a visible seam weld flaw that, over time grew to a critical size, causing the pipeline to rupture during a pressure increase stemming from poorly planned electrical work at the Milpitas Terminal...<sup>3</sup>

The NTSB found that PG&E's poor quality control was also a factor in the Rancho Cordova installation that resulted in an explosion in 2008, as was PG&E's inadequate emergency response after that explosion:

... the NTSB notes that several of the deficiencies revealed by this investigation, such as poor quality control during pipeline installation and inadequate emergency response, were also factors in the 2008 explosion of a PG&E gas distribution line in Rancho Cordova, California.<sup>4</sup>

The IRP Report noted the importance of quality assurance, which in data projects includes systematic checks for accuracy at multiple stages after data entry has been performed under quality control requirements. It recognized that PG&E's failure to have any quality assurance of its pipeline records after the initial data entry (which was obviously not subject to quality control) allowed the misinformation about Line 132 to persist in the database for decades:

Data management is important, but it is just one process in the chain. Quality assurance is the framework that runs throughout the entire process. A review by experienced piping engineers who question assumptions and demand substantiation should be a part of the quality assurance for the threat identification and risk ranking process. At any number of process steps in PG&E's threat identification and ranking processes, a casual review by an experienced piping engineer should have flagged the

---

<sup>3</sup> NTSB Report, p. xii.

<sup>4</sup> *See, e.g.*, NTSB Report, p. 116.

mischaracterization of the pipe seam type for the Line 132 segments that are the subject of this investigation.<sup>5</sup>

This theme of PG&E's lack of quality assurance and quality control runs throughout the IRP Report.<sup>6</sup>

The DRA Motion raises the issue of whether PG&E is performing adequate quality assurance and quality control ("QA/QC") in its development of the Updated PSEP. We agree with DRA that accurate prioritization and costing of PSEP projects are very important, and that the Commission should take all steps reasonably necessary to ensure that PG&E provides an Updated PSEP that is accurate and complete as filed. Further, we agree with DRA that it is necessary for PG&E to perform QC/QA for all steps in its development of the PSEP Database, but that this action alone is insufficient to ensure the accuracy and completeness of the Updated PSEP. Given PG&E's historic lack of effective QA/QC, the Commission must provide independent quality control of the Updated PSEP proposal.

Consequently, we direct PG&E to perform quality assurance and quality control throughout PSEP implementation, and specifically for all steps in the development of the Updated PSEP, as depicted in DRA's flowchart, which is Attachment A here. All QA/QC activities shall be consistent with relevant quality assurance standards, and PG&E will provide a program-specific Quality Assurance Plan designed to prevent errors

---

<sup>5</sup> IRP Report, p. 62 (*emphases added*).

<sup>6</sup> *See, e.g.*, IRP Report, p. 8 ("The lack of an overarching effort to centralize diffuse sources of data hinders the collection, quality assurance and analysis of data to characterize threats to pipelines as well as to assess the risk posed by the threats on the likelihood of a pipeline's failure and consequences.") and p. 62 ("PG&E lacks robust data and document information management systems and processes. These hinder the collection, quality assurance/quality control, and analysis of data to fully characterize threats to pipelines as well as assess the risk posed by the threats on the likelihood of a pipeline's failure.") and p. 72 ("The fact the line pipe DSAW seam type was incorrectly recorded as 'seamless' is symptomatic of PG&E's inadequate quality control and quality assurance management. The failure to properly document the seam type designation as DSAW, rather than seamless is not sufficient in itself to have prevented this incident, but had the records been more complete and the characterization been part of a more refined threat identification process, then the tragedy might have been avoided. Without a quality assurance program embedded in the integrity management process— and a feedback loop when anomalies are uncovered or pipelines do fail, mistakes happen. Unheeded lapses in the end-to-end process of pipeline integrity can lead to accidents like San Bruno.").

from occurring, and to correct them when they occur. PG&E's quality control checks must use methods that provide statistically significant findings. We also direct PG&E to clearly and completely document these QA/QC activities in the Updated PSEP Application.

We also agree that in light of PG&E's historic quality assurance and quality control failures described above, it is unrealistic to expect PG&E to implement a fully effective quality assurance program without effective oversight. Consequently, the Commission's Safety and Enforcement Division ("SED") will perform independent quality control of the Updated PSEP and the underlying updated PSEP Database per Steps 1 through 5 of Attachment A using methods that provide statistically significant findings. Since DRA developed methods and tools to evaluate cost elements of PG&E's original PSEP application, the Commission will rely on DRA to perform independent quality control of the Updated PSEP and the underlying PSEP Database per Steps 6 and 7 of Attachment A. The evaluations by SED and DRA should use methods that provide statistically significant findings.

The DRA Motion has shown good cause to issue a ruling ordering PG&E to perform and document the quality assurance and quality control steps used in the development of its PSEP Update Application, and clarifying related issues. Accordingly, the DRA Motion is granted.

IT IS RULED THAT the Motion Of The Division Of Ratepayer Advocates For A Ruling Directing Pacific Gas And Electric Company To Provide Quality Assurance And Quality Control Plans For The Development And Implementation Of Its Updated PSEP is granted.

1. PG&E shall perform quality assurance and quality control ("QA/QC") activities per all relevant quality standards on all PSEP activities consistent with its obligation pursuant to Section 451 of the Public Utilities Code to provide safe service. This obligation requires PG&E to develop a QA/QC Plan for its Updated PSEP, and to perform QA/QC activities on all seven steps in the development of its Updated PSEP, as depicted in DRA's flowchart, which is Attachment A here.

2. PSEP QA/QC activities will be performed consistent with a comprehensive QA/QC Plan to prevent errors, and to find and correct those that occur.

3. PG&E's Updated PSEP Application shall document and describe the specifically relevant quality standards applicable, the procedures and processes followed, and results of quality control ("QC") checks. The documentation must include an overall QA/QC plan, and discussion of how PSEP project design is consistent with "sound engineering practice." QA/QC documents will show the date of issuance, revision number, and clear indication of the level of management approval. QC checks will use methods that provide statistically significant findings.

4. The Commission directs SED to perform quality control of the Updated PSEP and the underlying PSEP Database per Steps 1 through 5 of Attachment A using methods that provide statistically significant findings. The Commission's assessment of PG&E QA/QC activities will be served on parties in this proceeding.

5. The Commission acknowledges that DRA intends to perform quality control for Steps 6 and 7 of the Updated PSEP and the underlying PSEP Database using methods that provide statistically significant findings. DRA's findings will be served on parties in this proceeding as testimony per the schedule to be announced in a scoping ruling.

(END)