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	R.11-02-019 (Filed February 24, 2011)

OPENING BRIEF OF PACIFIC GAS AND ELECTRIC COMPANY REGARDING ORDER TO SHOW CAUSE WHY ALL COMMISSION DECISIONS AUTHORIZING INCREASED OPERATING PRESSURE SHOULD NOT BE STAYED PENDING DEMONSTRATION THAT RECORDS ARE RELIABLE

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I. INTRODUCTION

This order to show cause (OSC) has a single focus: whether the Commission should suspend pressure restoration orders [1] on four natural gas transm ission lines and one section of station piping (the Pressure Restoration Lines) in light of the Line 147 record discrepancies identified by PG&E.[2] As PG&E explained, the pipeline features list (PFL) for Line 147 was one of the earliest completed. Shortly after, PG&E implemented enhanced quality control and quality assurance measures that reduced the potential for similar errors, resulting in an error rate of less than one percent. [3] PG&E's recent re-review of the MAOP validation records for all the Pressure Restoration Lines found no other errors. [4] No party presented evidence of any other

[1] D.12-09-003 (L131-30); D11-12-048 (L101, 132A, 147); D11-10-010 (Topock Compressor Station suction side).
[2] R.T. 3174 (ALJ Bushey) ("[T]he OSC was clear. The question is given the recordkeeping discrepancies that were identified in Line 147, should the C ommission suspend the other pressure restoration orders that it issued on the same basis?").
[3] R.T. 2466-67, 3124 (PG&E/Singh).
[4] R.T. 2468 (PG&E/Singh).

error in PG&E's MAOP or other records for the Pressure Restoration Lines, let alone an error so significant as to warrant the Commission suspending its pressure restoration orders.[5]

PG&E established the safety of the Pressure Restoration Lines through Commission-ordered hydro testing. D.11-09-006 required PG&E to demonstrate that it had pressure tested all the HCA segments.[6] PG&E went beyond what the Commission required and hydro tested all segments of the Pressure Restoration Lines.[7] As part of the pressure restoration process, the Commission's Safety and Enforcement Division (SED) (then the Consumer Protection and Safety Division) verified that PG&E had completed the required hydro testing and MAOP validation, and concurred that the lines could safely have their pressure restored. More recently, SED – as well as Michael Rosenfeld, one of the leading independent pipeline experts in the country – emphasized that pressure testing demonstrates the ability of pipelines to safely operate at their MAOPs.[8] After a detailed reexamination by SED and the parties to this proceeding, the Commission recently concluded that Line 147 – the line with the PFL errors – can be safely operated at 330 psig.[9] Since the line with the PFL errors is safe, there can be no doubt that the lines without such errors are safe, as demonstrated by PG&E's successful hydro tests.

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[5] At the conclusion of evidentiary hearings, ORA submitted testimony from Thomas Roberts. As described by Mr. Roberts, "The overarching conclusion of my testimony is that the drawings for Line 147 . . . do not represent a modern drawing or document control system." Ex. OSC-8 at 1. These observations lack any meaningful support and are irrelevant to the Commission's determination in this proceeding. Mr. Roberts himself admits that he has "limited engineering or operational experience with natural gas pipelines." *Id.* Contrary to Mr. Roberts' view, pipeline industry expert Michael Rosenfeld explains that PG&E's pipeline drawings meet operational needs, and that there are no regulations, safety standards, or recommended practices that require records to be kept in the manner advocated by Mr. Roberts. *See* Exhibit A.

[6] For these purposes, "HCA segments" refers to Class 3 and 4 locations and high consequence area segments in Class 1 and 2 locations.

[7] R.T. 2438 (PG&E/Johnson) ("[A]ll of these pipelines have been pressure tested[.]").

[8] SED Report on Investigation of Pacific Gas and Electric Company's Gas Transmission Pipeline 147 at 22 (Nov. 14, 2013) ("[T]he Commission determined that a strength test, performed in conformance with specified requirements, is an industry recognized and accepted method which can safely establish the MAOP of a pipeline and confirm its on-going operational integrity."); R.T. 2545 (PG&E/Rosenfeld) ("I believe that one can operate a pipeline system safely provided you have performed a hydrostatic test to a high level with a generous margin over and above what you operate at.").

[9] D.13-12-042.

The Commission did not even require MAOP validation records for the HC A segments, only for the non -HCA segments that would have their pressure restored. [10] Although it was not required, PG&E submitted the MAOP validation PFLs for the HCA segments as part of the pressure restoration process. The Line 147 PFL that was not requ ired contained the errors. Given the successful strength tests on the Pressure Restoration Lines and the lack of any evidence of other record discrepancies on those lines, there is no reason to suspend any of the Commission's pressure restoration orders.

II. HYDRO TESTING CONFIRMS THE SAFE OPERATION OF THE PRESSURE RESTORATION LINES

Safe operating pressure levels are best established by a successful pressure test. The Commission recognized this fact in approving PG&E's MAOP Validation methodology. In D.11-06-017, the Commission directed PG&E to perform a thorough records review to validate MAOPs.[11] However, this records review effort was only an interim safety measure that served to prioritize pipeline segments for testing or replacement, and to drive pressur e reductions when traceable, verifiable, and complete pressure test records for a pipeline segment could not be found.[12] The Commission did not allow PG&E or any other operator to use historic operating pressures or calculations based solely on pipe specif ications to establish MAOPs, but instead directed all operators to test or replace all pipe for which they could not identify traceable, verifiable, and complete pressure test records:[13]

> We order all California natural gas transmission pipeline operators to prepare Implementation Plans to either pressure test or replace all segments of natural gas pipelines which were not pressure tested or lack sufficient details related to performance of any such

[10] D.11-09-006, OP 4(E).
[11] D.11-06-017, OP 1.
[12] D.11-06-017 at 26-27, OP 7.
[13] D.11-06-017 at 19.

> test. These plans should provide for testing or replacing a ll such pipeline as soon as practicable.[14]

The Commission reiterated this principle in its decision establishing the process for PG&E to request authorization to restore pressure on a given pipeline. [15] Prior to requesting permission to restore the MAOP to h istoric operating levels, PG&E must locate pressure test records for all HCA segments, or pressure test these sections of pipe.[16]

Following the Commission's direction in D.11 -09-006, PG&E has verified pressure test records or hydro tested all HCA segments prior to requesting authorization to restore maximum allowable operating pressure. [17] All segments of the Pressure Restoration Lines (not just the HCA segments) have been tested in accordance with regulations in effect at the time the respective strength t ests were performed and to a level substantially higher than the maximum operating pressure authorized by the Commission's pressure restoration orders. Thus, these pipelines are operating with a substantial margin of safety.[18]

PG&E's pressure tests estab lish safe operating pressures regardless of the potential for missing or inaccurate data in PG&E's records for vintage pipelines. As described by Mr. Rosenfeld, a hydro test is a "proof test" that proves the pipe is safe to operate. [19] This proof test is v alid regardless of what the pipe specifications are, or whether the operator's records match what is in the ground.[20] As Mr. Rosenfeld stated,

> [C]onceptually it's like saying if the bridge can hold an 80 -ton truck, it's logical that it can hold up a 40 -ton truck, and it doesn't matter what the bridge is made out of. Whether it's wood, stone, wrought iron or, you know, high test steel, it can do that job. . . . [A] successful test can make up for or can help compensate for

[14] D.11-06-017 at 19.
[15] D.11-09-006, OP 4.
[16] D.11-09-006, OP 4.
[17] R.T. 2427, 2433 (PG&E/Johnson).
[18] *See* Ex. OSC-4.
[19] R.T. 2959 (PG&E/Rosenfeld).
[20] *See* R.T. 2959 (PG&E/Rosenfeld).

> some things that aren't known suc h as every – the complete description of every piece of pipe. And that relies on the fact that the hydrotest was performed to a pretty high level over and above what the pipeline operates [at].[21]

In short, the successful strength tests on the Pressure Rest oration Lines alone establish safe operating pressures. These pressure tests are valid regardless of whether an operator possesses complete pipeline records. The Commission should recognize now, as it did when it granted PG&E's request to restore pressur e, that PG&E has satisfied the conditions of the pressure restoration process and leave the pressure restoration orders in effect.

III. THERE IS NO EVIDENCE OF ADDITIONAL RECORDS DISCREPANCIES ON THE PRESSURE RESTORATION LINES

The Commission issued the OSC following the discovery of an error in the PFL for Line 147. After a proceeding lasting four months, including four days of evidentiary hearings, an informal workshop,[22] hundreds of discovery requests, and PG&E's thorough review of pipeline records for the other Pressure Restoration Lines, no record discrepancy has been identified other than those PG&E identified on Line 147. Confidence in PG&E's pipeline records is further bolstered by enhanced quality control and quality assurance processes in PG&E's MAO P Validation effort.

PG&E performed a root cause investigation of the error identified on Line 147 and determined that the error was not caused by incorrect underlying pipeline records, but was the result of an engineer's misapplication of an assumed value where pipeline records for particular specifications were unavailable.[23] PG&E performed a close inspection of the PFL for Line 147 and identified an additional data discrepancy that resulted from the same MAOP Validation

[21] R.T. 2959-60 (PG&E/Rosenfeld).
[22] R.T. 2703-04; R.T. 271219.
[23] Verified Statement of Kirk Johnson at 8-9 (Aug. 30, 2013).

engineer having incorrectly resolv ed conflicting pipeline record data. [24] PG&E's root cause analysis determined that several data quality measures, including a peer review of the engineer's pipe specification determinations, were not performed. [25] The errors would likely not have occurred or persisted if the engineer correctly followed PG&E's procedure for resolving unknown pipe specifications and submitted the PFL for peer review. PG&E also performed a thorough review of the PFLs for the other Pressure Restoration Lines to determine whether any similar errors were present.[26] This review did not identify any records discrepancies on the other Pressure Restoration Lines.[27]

In addition to PG&E's investigation, parties to this proceeding served hundreds of discovery requests, spent four days questioning PG&E's Vice President of Gas Transmission Maintenance and Construction, PG&E's Senior Director for Asset Knowledge Management in Gas Operations (responsible for overseeing the MAOP Validation effort), and PG&E's lead consultant responsible for creating the PFL process, and attended a workshop ordered by Administrative Law Judge Bushey that gave parties the opportunity to review pipeline records for Line 147 foot -by-foot. The parties did not identify additional records discrepancies on the other Pressure Restoration Lines.

PG&E's confidence in the accuracy of its PFLs for the Pressure Restoration Lines (and for all lines) comes in part from enhancements to quality control and quality assurance processes in the MAOP Validation effort. Prior to the creation of the PFL for Line 147, PG&E had already implemented several measures to ensure accuracy, including Strength Test Pressure Report quality assurance, Records Collection quality assurance, and PFL Build and MAOP Report

[24] Verified Statement of Kirk Johnson at 9 (Aug. 30, 2013).
[25] R.T. 2454 (PG&E/Singh).
[26] R.T. 2467-68 (PG&E/Singh).
[27] R.T. 2468 (PG&E/Singh).

quality assurance.[28] In December 2011, after the creation of the Line 147 PFL but before discovering the errors,[29] PG&E implemented additional control measures, including the mandatory use of an automated assumptions tool and the mandatory use of an engineering data validation tool.[30] These tools automated the process of selecting appropriate conservative, assumed values and validating other determinations made by the MAOP Validation engineer. PG&E also added an engineering analysis quality assurance process that engaged a third party to audit the accuracy of PG&E's PFLs.[31] While PG&E acknowledges that the MAOP Validation process is a human-driven effort, and it therefore cannot eliminate the potential for error entirely, these measures serve to reduce and control the potential for error to the maximum degree possible. The engineering analysis quality assurance process identified an error rate of less than one percent, demonstrating the effectiveness of PG&E's records accuracy control measures.[32]

On top of all this, the final "proof of the pudding" lies in the fact that every foot of pipe in the Pressure Restoration Lines has been pressure tested to a level well above its MAOP[33] – a level that, in the words of Mr. Rosenfeld, "establishes the ability of the pipeline to safely operate at significantly lower pressures. You've got a very large margin between the test pressure and the operating pressure. That's a – provides a minimum immediate factor of safety."[34]

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[28] Ex. OSC-4 at 6.
[29] R.T. 2462 (PG&E/Singh).
[30] Ex. OSC-4 at 9; Verified Statement of Kirk Johnson at 12-14 (Aug. 30, 2013).
[31] Ex. OSC-4 at 9.
[32] R.T. 2466-67, 3124 (PG&E/Singh).
[33] *See, e.g.*, PG&E's Supporting Information for Lifting Operating Pressure Restrictions on Line 300B, Exhibits A-B (Sept. 20, 2012); PG&E's Supporting Information for Lifting Operating Pressure Restrictions on Line 131-30, Exhibits A-B (May 31, 2012); PG&E's Supporting Information for Lifting Operating Pressure Restrictions on Lines 101, 132A and 147, Exhibits A-F (Oct. 31, 2011).
[34] R.T. 2589 (PG&E/Rosenfeld).

IV. SUSPENDING PRESSURE RESTORATION ORDERS WOULD INCREASE THE LIKELIHOOD OF CURTAILMENTS AND LIMIT PG&E'S ABILITY TO CONDUCT PIPELINE SAFETY WORK

During a recent cold snap in December 2013, PG&E was able to maintain gas operations without curtailing customers. However, in the event the Commission suspends the pressure restoration orders, the outcome would be very different, as PG&E would not have the ability to serve all customers or perform vital pipeline safety work. Additionally, three of the Pressure Restoration Lines provide service to the San Francisco Peninsula. Lowering the pressures in these Pressure Restoration Lines would expose both core (residential) and non-core (hospitals, schools, and power plants) customers to an increased risk of curtailments.[35] During cold temperatures, schools, hospitals, and power plants would have their gas use limited or restricted completely.[36] During periods of very cold weather, residential customers may also be curtailed. Finally, suspending the pressure restoration orders would also constrain PG&E's ability to conduct pipeline safety work contemplated in its Pipeline Safety and Enhancement Plan.[37]

V. CONCLUSION

PG&E has demonstrated the safety of the Pressure Restoration Lines through hydro testing, as confirmed by pipeline industry experts. At the time they were submitted, SED concurred with PG&E's demonstrations, and agreed that the Pressure Restoration Lines are safe to operate. SED has not retreated from those views. After a thorough internal investigation, multiple days of cross examination, hundreds of discovery requests, and a workshop where PG&E provided unfettered access to its pipeline and hydro test documentation, no records discrepancies have been identified on the Pressure Restoration Lines, other than those discrepancies on Line 147 (the line that the Commission recently authorized to return to service

[35] R.T. 2435-36 (PG&E/Johnson); Ex. OSC-4 at 5.
[36] R.T. 2437 (PG&E/Johnson).
[37] R.T. 2798-99 (PG&E/Singh); R.T. 2800-03 (PG&E/Johnson).

at a restored pressure of 330 psig). The Commission should not suspend the pressure restoration orders.

Respectfully submitted,

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