STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
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SAN FRANCISCO, CA 94102-3298

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TO PARTIES OF RECORD IN RULEMAKING 11-02-019

This is the proposed decision of Administrative Law Judge (ALJ) Maribeth A. Bushey. It will not appear on the Commission's agenda sooner than 30 days from the date it is mailed. The Commission may act then, or it may postpone action until later.

When the Commission acts on the proposed decision, it may adopt all or part of it as written, amend or modify it, or set it aside and prepare its own decision. Only when the Commission acts does the decision become binding on the parties.

With the exception of the time for filing reply comments, parties to the proceeding may file comments on the proposed decision as provided in Article 14 of the Commission's Rules of Practice and Procedure (Rules), accessible on the Commission's website at www.cpuc.ca.gov. Reply comments must be filed and served no later than **12:00 noon June 6, 2011**.

Comments must be filed pursuant to Rule 1.13 either electronically or in hard copy. Comments should be served on parties to this proceeding in accordance with Rules 1.9 and 1.10. Electronic and hard copies of comments should be sent to ALJ Bushey at mab@cpuc.ca.gov and the assigned Commissioner. The current service list for this proceeding is available on the Commission's website at www.cpuc.ca.gov.

/s/ JANET A. ECONOME for
Karen V. Clopton, Chief
Administrative Law Judge

KVC:gd2

Attachment

Decision **PROPOSED DECISION OF ALJ BUSHEY** (Mailed 5/10/2011)

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)

DECISION DETERMINING MAXIMUM ALLOWABLE OPERATING PRESSURE METHODOLOGY AND REQUIRING FILING OF NATURAL GAS TRANSMISSION PIPELINE REPLACEMENT OR TESTING IMPLEMENTATION PLANS

1. Summary

This decision orders all California natural gas transmission operators to develop and file for Commission consideration A Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan (Implementation Plans) to achieve the goal of orderly and cost effectively replacing or testing all natural gas transmission pipeline that have not been pressure tested. The Implementation Plans may include alternatives that demonstrably achieve the same standard of safety but must include a prioritized schedule based on risk assessment and maintaining service reliability, as well as cost estimates with proposed ratemaking. In the interim, PG&E should continue to work on its determination of Maximum Allowable Operating Pressure through pipeline features analysis and should use the result of that analysis to impose further pressure reductions as necessary pending replacement or testing. PG&E may

use engineering-based assumptions for this analysis where required due to missing records. A series of technical workshops will be convened prior to the filing of the Implementation Plans to assist the operators in prioritizing segments in their Implementation Plans.

2. Background

2.1. Commission Orders Based on National Transportation Safety Board Safety Recommendations

On January 3, 2011, the National Transportation Safety Board (NTSB) issued three Safety Recommendations to Pacific Gas and Electric Company (PG&E), this Commission and the United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA). All three Safety Recommendations included substantially the same descriptions of findings by NTSB as a result of the initial stages of its investigation of the San Bruno pipeline rupture and fire. The NTSB first explained that PG&E’s as-built drawings and alignment sheets showed Line 132 was constructed using 30-inch-diameter seamless steel pipe, but the ruptured pipe segment was in fact constructed with longitudinally seam-welded pipe. The NTSB further explained that accurate pipeline records are critical to establish a valid Maximum Allowable Operating Pressure (MAOP) up to which the pipeline can normally be safely operated. Although recognizing hydrostatic and spike testing can, in certain circumstances, be used to determine a valid MAOP, the NTSB concluded that it was preferable to use available design, construction, inspection, testing and other related records to determine a valid MAOP.

In the letter to PG&E, the NTSB made the following recommendations, with similar recommendations for this Commission and PHMSA to oversee PG&E's compliance:

1. Aggressively and diligently search for all as-built drawings, alignment sheets, and specifications, and all design, construction, inspection, testing, maintenance, and other related records, including those records in locations controlled by personnel or firms other than PG&E, relating to pipeline system components, such as pipe segments, valves, fittings, and weld seams for PG&E natural gas transmission lines in Class 3 and Class 4 locations and Class 1 and Class 2 high consequence areas that have not had MAOP established through prior hydrostatic testing. These records should be traceable, verifiable, and complete. (P-10-2) (Urgent)
2. Use the traceable, verifiable, and complete records located by implementation of Safety Recommendation P-10-2 (Urgent) to determine the valid maximum allowable operating pressure, based on the weakest section of the pipeline or component to ensure safe operation, of PG&E natural gas transmission lines in Class 3 and Class 4 locations and Class 1 and Class 2 high consequence areas that have not had MAOP established through prior hydrostatic testing. (P-10-3) (Urgent)

The Commission's Executive Director, in a letter dated January 3, 2011 (the same date as the NTSB's Safety Recommendations), advised PG&E of the NTSB's Safety Recommendations, and ordered PG&E to complete compliance with the recommendations by February 1, 2011. On January 7, 2011, PG&E responded to the Executive Director's January 3, 2011 letter, indicating that the utility could not comply with the February 1, 2011 date in obtaining all of the requested records, but that it would provide those records by March 15, 2011. The Commission ratified the Executive Director's order on January 13, 2011, in Resolution L-410, and extended PG&E's date for the compliance report filing to

March 15, 2011. Thereafter, in Ordering Paragraph 3 of Rulemaking (R.) 11-02-019 initiated on February 24, 2011, the Commission directed PG&E to file and serve its compliance report on all parties to this rulemaking.

On March 15, 2011, PG&E filed and served a report it characterized as a "status report on the first phase of its efforts to validate its gas transmission records and the maximum allowable operating pressure of each of its gas transmission pipelines."[1] PG&E stated that Phase 1 of its MAOP validation effort was focused on collecting and reviewing pipeline records to determine whether PG&E possesses records that demonstrate MAOP by either:

1. pressure tests, or
2. For pipelines installed prior to 1970 where MAOP was set pursuant to 49 CFR § 192.619(c), the pipeline's highest actual operating pressure from July 1, 1965, through June 30, 1970.[2]

Specifically, on page 7 of its March 15 Report, PG&E stated as follows:

> Neither the NTSB nor the Commission defined "traceable, verifiable and complete." Nor is that phrase contained in the applicable regulations. PG&E understands the intent to be to identify reliable records confirming the performance of a pressure test *or the determination of MAOP based on the historical high operating pressure*.

(PG&E March 15 submission, at 7 (emphasis added).)

In keeping with this purported "understanding" of the Commission's order and the NTSB's safety recommendation, PG&E stated that of the total 1,805 miles of transmission pipeline, 455 miles had MAOP determined by highest

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1 PG&E Report at 1.

2 PG&E Report at 7.

operating pressure from 1965 to 1970.[3] Of those 455 miles, PG&E has located records to support the highest historical operating pressure for about 95% or 432 miles. PG&E stated that it plans to continue its MAOP validation efforts in Phase 2 where it will complete the validation of the documents supporting the 619(c) MAOP determinations, which may include excavations and field testing of pipeline systems "as appropriate."[4] PG&E explained that it planned to complete Phase 2 by the end of 2011.

As a result of its record review, PG&E identified 152 miles of pipeline for which it has not located pressure testing records and the segments contain either pre-1962 double submerged arc welded pipe with a diameter of 24 to 36 inches or pre-1974 seamless pipe which records show as having a diameter greater than 24 inches. PG&E explained that it selected pipeline with these characteristics due to similarities to the ruptured segment of Line 132 in San Bruno. PG&E stated that it intended to either perform a hydrostatic test on or replace these 152 miles of pipeline during 2011.

On March 16, 2011, the Commission's Executive Director issued a letter to PG&E finding that PG&E's March 15 response failed to comply with the NTSB's recommendations and the Commission's directives because it continued to rely on determination of MAOP based on the historical high operating pressure. The

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[3] Pipeline with MAOP set via subsection 619(c) is often referred to as "grandfathered" pipeline because it is exempted from MAOP federal regulations adopted after 1970, which required all new transmission pipelines to be pressure tested, prior to being placed in service. The Commission's General Order 112, which became effective on July 1, 1961, mandated pressure test requirements for new transmission pipelines (operating at 20% or more of SMYS) installed in California after the effective date.

[4] PG&E Report at 12.

Executive Director stated that PG&E had no legitimate or good-faith basis for continuing to use "grandfathered" MAOP and instead must comply with the NTSB recommendations and the Commission's orders.

On March 21, 2011, PG&E submitted its Request for Approval of Compliance Plan and Supplement to its March 15, 2011 report. PG&E stated that in its March 15 submittal it "failed to communicate…the full extent of the work we have done and are continuing to do."[5] PG&E explained that it compiled the documents supporting the MAOP for pre-1970 pipelines set with historical operating pressure and reported to the Commission on this effort. PG&E, however, went on to state that it did not intend to suggest that its efforts would end with compiling these documents. Rather, PG&E would then use the documents to calculate a MAOP based on engineering specifications and then set the MAOP at the lower of the calculated or historical MAOPs. PG&E provided samples of the documents that it is reviewing to determine the detailed attributes of each pipeline and components.

PG&E admitted that it did not expect to find records that would meet the NTSB recommendation and the Commission's directive for each component of its pre-1970 pipeline. PG&E stated that in cases where such records were not located, it would make "assumptions about certain components, such as fittings and elbows, based on material specifications at the time those materials were procured, sound engineering judgment, and conducting excavation and field testing of pipeline systems as appropriate."[6]

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[5] PG&E March 21, 2011 Supplement to Report at 1.

[6] *Id.* at 14–15.

PG&E then explained its plan to compile all information from its document review, engineering analysis, and field testing into a comprehensive pipeline features list for 1,805 miles of its high consequence area pipeline. With the pipeline features list, PG&E will establish an MAOP of the pipeline based on the calculated MAOP of the weakest component, and may use assumptions where needed, by using MAOP calculation software from a third-party gas pipeline engineering firm.

PG&E prioritized its older pipeline for MAOP validation in the following way:

1. Pipe similar in specification to that involved in San Bruno, 152 miles;
2. Pipe with certain types of welds that suggest weld is weaker than pipe material, 295 miles; and,
3. All remaining pipeline installed prior to July 1, 1970, 206 miles.

Apart from the records-based MAOP validation effort, PG&E stated that it has decided to hydrostatic test or replace the first priority group of pipeline-152 miles. According to PG&E, the contracting, engineering, planning and permitting efforts are already underway for this testing and it is expected to be completed this year. PG&E stated that it is also conducting further physical assessment on 435 miles of high consequence area pipeline and it will tailor its analysis of these pipeline miles to the unique characteristics of each pipeline.

On March 24, 2011, the Commission issued Decision (D.) 11-03-047 in which it found that PG&E appeared to have failed to comply with Commission Resolution L-410 and R.11-02-019 concerning pipeline for which records of pressure testing can not be located. The Commission ordered PG&E to appear at a hearing and show cause why it should not be found in contempt of the Commission and fined for failing to comply with a Commission order.

Also on March 24, 2011, PG&E and the Commission's Consumer Protection and Safety Division (CPSD) filed a stipulation resolving the issues in the order to show cause.

On March 28, 2011, a hearing on the order to show cause was convened, with the assigned Commissioner Florio and Commissioner Sandoval present. PG&E brought forward witnesses in support of the stipulation, who were made available for cross examination. As is relevant to the issues addressed in today's decision, Commissioner Sandoval questioned PG&E's Vice President for Gas Engineering and Operations regarding the use of assumptions in the MAOP validation methodology. PG&E's Vice President explained that for pipeline equipment for which PG&E does not have records, it will make very conservative assumptions based on the era during which the pipeline was constructed, the types of material then available, and the type of material PG&E was purchasing.[7] PG&E's Vice President stated that prior to doing a hydrostatic test it was important to know the components of the pipeline to be tested:

> What you want to know is everything that's in the ground before you start conducting that test so that you don't put yourself in a situation where you've led to unintended consequences by pressuring that pipe up.[8]

The Vice President went on to explain that with regard to seamed pipeline, where adequate records are not available regarding the strength of the

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[7] Transcript at 79.

[8] Transcript at 84.

longitudinal weld, PG&E would dig up the pipe and verify the condition of the weld.[9] PG&E offered its MAOP validation for its Line 101 as an example of how it intended to approach issues of missing records.[10]

2.2. SoCalGas and SDG&E Initial Comments Filed on April 13, 2011 and Report on Actions taken in Response to NTSB Recommendations filed on April 15, 2011

In comments on the overall Rulemaking, Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) supported the Commission's efforts to update existing rules specifying how to calculate the MAOP for pre-1970 pipeline. The utilities, however, stated that a "significant" number of miles of transmission pipeline would be included in these rules and recommended a "well-considered transition plan that provides adequate time and resources to implement the new requirements, while at the same time enabling gas utilities to fulfill their obligations to reliably serve their customers," because these utilities anticipate that any such new rules may require "wide-scale pipeline replacements."[11]

These utilities proposed a technical workshop process to address pre-1970 natural gas transmission pipeline but stated that as an initial matter, the Commission should allow all California gas utilities to complete their current document-based efforts to validate MAOP. Then, the workshop process should be used to develop a comprehensive set of rules changes to address pre-1970 pipeline in a manner that will enhance public safety while enabling the

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[9] Transcript at 85.

[10] Transcript at 96.

utilities to maintain reliable service to their customers. Issues to be considered include whether feasible alternatives to pressure testing, such as non-destructive evaluation methods including inline inspection, ultrasonic testing, or radiographic inspection, can provide similarly reliable pipeline integrity validation.[12]

In its April 15, 2011 report on actions taken in response to the NTSB recommendations, SoCalGas and SDG&E explained that they did not follow the two-step MAOP calculation approach set out in NTSB P-10-2 (Urgent) and P-10-3 (Urgent). These utilities stated that "traceable, verifiable, and complete records" for pipeline installed over 50 years ago was "a very difficult, if not infeasible threshold to achieve" and instead focused on demonstrating that the specified margin of safety had been achieved by some type of pressure test.[13]

SoCalGas and SDG&E stated that they were reviewing the records for 1,622 miles of gas transmission pipeline segments that meet the NTSB specifications. Based on the records, the utilities separated the miles of pipeline segments into the following four categories:

	Category 1 – Pressure tested with water	Category 2 – Pressure tested with medium other than water	Category 3 – Operate at 80% of historic MAOP	Category 4 – Miles Pending Further Review
SoCalGas	734	272	27	383 (207 in-line inspected)

11 SoCalGas/SDG&E Comments April 13, 2011 at 12.

12 *Id*. at 13.

13 April 15, 2011 Report of SoCalGas and SDG&E at 9.

SDG&E	134	8.0	0.0	64

SoCalGas and SDG&E stated that they are actively engaged in an action plan for the pipeline segments in Category 4. Pending development and completion of the action plan, all Category 4 pipeline will be subject to bimonthly patrols and leakage surveys. SoCalGas and SDG&E explained that each pipeline segment must be carefully analyzed to determine the optimum action to be taken. The utilities will develop segment-specific action plans which will initially consider if current operating MAOP can be reduced to 80% of historic MAOP.[14] Next, the integrity of any longitudinal seam will be inspected. Then pressure testing using either water or nitrogen will be evaluated, and finally replacement or repair will be considered.[15] The utilities expect to have the final segment-specific action plan to the Commission by October 21, 2011.

2.3. PG&E's Motion on April 21, 2011

On April 21, 2011, PG&E filed and served its Motion for Adoption of a Maximum Allowable Operating Pressure Validation Methodology (Motion) and also requested that the time for responding to the motion be shortened to five days. PG&E stated that a Commission response to the motion was urgently required as it is in the midst of the Commission-ordered validation effort and

[14] SoCalGas and SDG&E stated that their operational objective was to ensure a margin of safety equivalent to 1.25 times MAOP for all pipeline segments within the NTSB parameters. The 1.25 factor is from a United States Department of Transportation Office of Pipeline Safety publication which determines that manufacturing defects that survive such a test are stable at a MAOP of 80% of the test pressure.

[15] April 15, 2011 Report of SoCalGas and SDG&E at 13–14.

needs immediate guidance as to whether its validation methodology is acceptable to the Commission.

In its motion, PG&E explained that neither the NTSB nor the Commission explicitly defined the meaning of the terms "traceable, verifiable, and complete records." Since receiving NTSB directive, PG&E stated that it has been consulting with and informing the Commission staff of its plans and progress.

PG&E stated that the MAOP validation required by the NTSB safety recommendation and the Commission's directive is unprecedented. PG&E went on to admit that, particularly for its older pipelines, it will not be able to locate specific records of every component in the pipeline.[16] PG&E also stated that the Sempra gas utilities have similarly determined that producing documentation for each natural gas pipeline component is "very difficult, if not infeasible."[17]

Notwithstanding the lack of documentation, PG&E stated it must include some value for each pipeline component in its Pipeline Features List, which will be the data set used to calculate a MAOP based on the weakest component as described in PG&E's March 21, 2011 Request for Approval of Compliance Plan. PG&E's proposal to address the pipeline components for which it lacks documentation is as follows:

> [W]e are making assumptions about certain components, such as fittings and elbows, based on the material specifications at the time those materials were procured, sound engineering judgment, and conducting excavation and field testing of pipeline systems as appropriate. We will determine what field testing to use on a case-by-case basis from such techniques as X-ray or cameral

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[16] PG&E April 21, 2011 Motion at 4.

[17] *Id. quoting* SoCalGas and SDG&E's April 15, 2011 report.

> inspection of welds and measuring yield strength using Advanced Technology Corporation's Automated Bell Indentation System.
>
> …
>
> The information from the document review, engineering analysis and field-testing gets compiled into a document known as a pipeline features list (PFL).
>
> …
>
> The completed PFLs feed directly into the engineering calculation of the MAOP. To perform the MAOP based upon the weakest component, we plan to use a proprietary MAOP calculation tool developed by a third-party gas pipeline engineering firm that specializes in MAOP calculations.[18]

In its Motion, PG&E stated its belief that the proposed methodology described above was "both valid and the only practical means of performing a records-based MAOP validation."[19] PG&E, however, further explained that it has recently become aware that the Commission's staff may not agree with this proposed methodology.

PG&E concluded that its proposed MAOP validation methodology is the only feasible means of calculating MAOP using pipeline component specifications. If the Commission determines that the proposed methodology, including using engineering-based assumptions, is insufficient to meet the recommendations of the NTSB and the Commission's directives, PG&E stated that the only other means to validate MAOP is by pressure testing the pipeline

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[18] PG&E's March 21, 2011, Request for Approval of Compliance Plan at 14–16.

[19] PG&E's April 21, 2011 Motion at 5.

segment. PG&E explained that it has 705 miles of high consequence area pipeline that is subject to the compliance plan, and that it estimates it would need approximately five years to pressure test or replace all 705 miles. A further consequence of such a Commission determination, PG&E submitted, would be that the compliance plan included with the stipulation with Staff on March 24, 2011 would need to be "revisited."

On April 26, 2011, the Director of the Commission's CPSD issued a letter to PG&E indicating that Division's position that the Commission should require "pressure testing or replacement wherever PG&E uses assumptions in its MAOP validation efforts." The letter specified that to be considered complete, a pressure test record must include all elements required by the regulations in effect when the test was conducted. For pressure tests conducted prior to the effective date of General Order 112, one hour is the minimum acceptable duration for a pressure test. The Director remained supportive, however, of continuing the document-based MAOP validation effort because the resulting pipeline features list would be useful for PG&E's on-going operations and for future decisions about pipelines. The Director concluded that PG&E should continue with its efforts to gather the best-available data and prepare the pipeline features list as scheduled in the compliance plan.

Parties to this proceeding responded to PG&E's Motion on April 29, 2011.

SoCalGas and SDG&E stated that when implementing the Commission's directive to comply with Recommendation P-10-3, they used the literal interpretation of NTSB's terms of "traceable, verifiable, and complete records" and determined that they could not meet that standard and, instead, focused on demonstrating some type of pressure test for each pipeline segment. SoCalGas and SDG&E supported PG&E's request for Commission guidance on this issue and renewed their call for technical workshops.

The Utility Reform Network (TURN) supported CPSD's position, but pointed out that even a perfect records chain would not provide any information concerning defective welds resulting from manufacturing defects or faulty installation. Because TURN believes that PG&E will have to conduct additional pipeline testing, repair and/or replacement to ensure safe operations the approximately 700 miles of high consequence area pipeline without pressure test records, TURN generally supports a records-based MAOP validation process to prioritize and define this work. TURN, however, noted that the usefulness of pursuing the MAOP validation "must be weighed against its costs." TURN explained that PG&E has testified that completing the entire records gathering and MAOP validation process will cost about one hundred million dollars. TURN contended that if the validation calculation process cost is minimal, then it should be performed. However, if the cost is "tens of millions of dollars" then the funds would be better spent on actual testing and repair work.[20]

The City and County of San Francisco opposed PG&E's Motion and stated that the Commission should explicitly direct that PG&E may not rely on assumptions in calculating MAOP, require PG&E to pressure test or replace the gas lines where PG&E has performed non-operationally required pressure increases, and instruct PG&E to safely and efficiently commence pressure testing or replacement of the 705 miles of gas transmission pipeline in high consequence areas without further delay. The City and County of San Francisco explained

[20] TURN Response to PG&E's Motion at 6.

that the phrase "traceable, verifiable and complete records" is not ambiguous, and necessarily requires PG&E have an actual record for each component.[21] Absent complete documentation, PG&E should be required to test or replace the pipeline. On timing, the City and County of San Francisco noted that the urgency of PG&E's motion was created by PG&E's own failure to comply sooner with the orders of the NTSB and the Commission, and that the Commission should not countenance continued delays. This party also opposed any testing or replacement plan that exceeded five years in duration.

The City and County of San Francisco also supported CPSD's definition of a complete pressure test record which includes ensuring that the test complied with then-applicable test state and federal requirements for such tests.

Disability Rights Advocates (DisabRA) opposed the motion and contended that the Commission must seek to increase public trust in the safety of PG&E's operations. DisabRA stated that substantial public skepticism exists regarding any set of assumptions advanced by PG&E. This party urged the Commission to make clear that PG&E will not be allowed to dictate the terms of the pipeline safety review and to instead appoint a panel of experts to oversee the assumption process.

3. Discussion

Pursuant to Public Utilities Code Section 451 each public utility in California must:

> Furnish and maintain such adequate, efficient, just and reasonable service, instrumentalities, equipment and facilities,…as are

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[21] City and County of San Francisco's Response to PG&E's Motion at 2.

necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

The duty to furnish and maintain safe equipment and facilities is paramount for all California public utilities.

This Commission is currently confronting the most deadly tragedy in California history from public utility operations. We are resolute in our commitment to improve the safety of natural gas transmission pipelines. In this context, it is absolutely essential that our regulated utilities display the highest level of candor and honesty. We understand that the issues at hand implicate substantial expenses and capital investments, and that the optimum means to address these safety issues may be subject to reasonable debate. To perform our Constitutional and statutory duties, we must have forthright and timely explanations of the issues, as well as comprehensive analysis of the advantages and disadvantages of potential actions. Attempts at legal exculpation have no place in our proceedings to address these urgent issues.

PG&E needs to rebuild the Commission's and the public's trust in the safety of its operations. The directives in today's decision are necessary steps to ensure safe operations and to restore public trust.

As the detailed history set out above shows, this project to validate MAOP was set in motion by the NTSB's justifiable alarm at PG&E's records being inconsistent with the actual pipeline found in the ground in Line 132. The pipeline features data for Line 132 were not missing; the recorded data were factually inaccurate. Records containing inaccurate pipeline features are fundamentally different from simply missing records. Curing PG&E's unreliable natural gas pipeline records was the obvious goal of the NTSB's recommendation to obtain "traceable, verifiable, and complete" records and, with reliably accurate data, calculate a dependable MAOP.

PG&E and SoCalGas/SDG&E state that such records are not available, especially for the older vintage pipelines. Notwithstanding the utilities' record-keeping challenges, these missing records are particularly needed because the older pipelines were exempted from pressure testing requirements and many have not been pressure tested.

Consequently, the untested pipelines are also some of the oldest in the natural gas transmission system and the more likely to lack a complete set of documents allowing pipeline feature documents to be established without the use of assumptions. We find that this circumstance is not consistent with this Commission's obligations to promote the safety, health, comfort, and convenience of utility patrons, employees, and the public. We conclude, therefore, that all natural gas transmission pipelines in service in California must be brought into compliance with modern standards for safety. Historic exemptions must come to an end with an orderly and cost-conscience implementation plan.

3.1. Interim Requirements

As TURN and CPSD note, remedial document management has benefits beyond calculating MAOP. As PG&E's engineer testified, knowing what is in the ground is a necessary prerequisite to a pressure test that does not have "unintended consequences." Therefore, we find that PG&E must continue its efforts to determine MAOP by component calculation.[22] Such efforts alone are not enough, however, to validate the safe operating pressure for its natural gas transmission pipeline.

As set forth below, we require California natural gas transmission pipeline operators to prepare and file a comprehensive Implementation Plan to replace or pressure test all natural gas transmission pipeline in California that has not been tested or for which reliable records are not available. We anticipate that these plans will provide for a multi-year implementation schedule.

In the interim, these California operators must abide by any pressure reductions that have been or may be ordered by this Commission or PHMSA. For instance, in its decision initiating this rulemaking, the Commission proposed adding new Rule 145 to General Order 112. That proposed rule, if adopted by the Commission, would require additional pressure reductions.

In addition, the California operators must continue work on their respective responses to the NTSB recommendations. PG&E's pipeline features analysis will be useful in determining a MAOP calculated based on the weakest component. PG&E must conform its authorized MAOP to the lower of any calculated MAOP and currently established MAOP.

As noted in their filings, PG&E is preparing to begin hydrostatic testing of 152 miles of pipeline to be completed in 2011. PG&E should continue these efforts.

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[22] PG&E explained that it intends to use the lower of the calculated MAOP or historical operating pressure. We approve using the calculated MAOP to lower operating pressure as an interim measure pending replacement or testing.

3.2. Replace or Pressure Test Implementation Plan

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 test. These plans should provide for testing or replacing all such pipeline as soon as practicable. Because these will be multi-year plans, the plans must include interim safety enhancement measures, including increased patrols and leak surveys, pressure reductions, prioritization of pressure testing for critical pipelines that must run at or near MAOP values which result in hoop stress levels at or above 30% Specified Minimum Yield Stress (SMYS), and other such measures that will enhance public safety during the implementation period. At the completion of the implementation period, all California natural gas transmission pipeline segments subject to this order must be (1) pressure tested, (2) have traceable, verifiable, and complete records readily available, and (3) where warranted, be capable of accommodating in-line inspection devices.[23]

Specifically, no later than 60 days after the effective date of this order, respondents SDG&E, SoCalGas, Southwest Gas Corporation and PG&E shall file and serve their respective proposed Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan (Implementation Plan) to comply with the requirement that all in-service natural gas transmission pipeline

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[23] As part of the workshop process ordered below, we will also direct these operators to develop standards for identifying transmission pipeline segment where retrofitting for in-line inspection techniques would be reasonable and feasible.

in California has been pressure tested in accord with 49 CFR 192.619, excluding subsection 49 CFR 192.619 (c).

Such Implementation Plans shall be completed as soon as practicable, due to significant public safety concerns, and must include interim safety enhancement measures, as described above.

The analytical nucleus of the Implementation Plan will be a list of all transmission pipeline segments that have not been previously pressure tested, with prioritized designations for replacement or pressure testing. The Implementation Plan must set forth the criteria on which pipeline segments were identified for replacement instead of pressure testing. Replacements should be prioritized and the prioritization criteria explained.

The Implementation Plan shall also contain a priority-ranked schedule for pressure testing pipeline not previously so tested, and may provide for MAOP reductions to the lowest of the following: (1) a level no greater than 80% of the reliably recorded maximum operating pressure (MOP) from January 1, 2006 to January 1, 2011, (2) the lowest MOP of any High Consequence Area (HCA) segment (defined per 49 CFR, Part 192) on a pipeline for the five-year period preceding the date of the identification of the HCA segment or the level to which the segment was lowered after September 9, 2010. The Implementation Plan must also address retrofitting pipeline to allow for in-line inspection tools and, where appropriate, automated or remote controlled shut off valves.

We grant SoCalGas and SDG&E's request for technical workshops to develop implementation details, including criteria for prioritization of work, prior to filing the Implementation Plans. These workshops are vital to developing a sound engineering approach, with supporting analysis, to address the issue of aging natural gas transmission pipeline that has not been pressure tested. We encourage participants in these workshops to be innovative and explore alternatives, but the guiding principle must be maintaining the highest level of public safety.

Due to the complex issues and limited timeframe to address them, the Commission's Chief Administrative Law Judge shall designate a facilitator for the workshops. The purpose of the workshops shall be to discuss and provide recommendations for California's natural gas transmission system operators on prioritizing pipeline segments for replacement or testing in their Implementation Plans. The workshop participants may survey best practices in other states for addressing pre-1970 natural gas pipeline that has not been pressure-tested, seek advice from industry experts or federal authorities, and take such actions as are necessary to inform themselves as to the optimum means of addressing the technical issues in this proceeding. The workshops will consider this information in developing the best practices for use in California. Written reports may be prepared and circulated.

The Commission's CPSD shall participate in the workshops and may submit periodic reports to the Commission or otherwise bring forward any urgent issues.

A key question regarding the Implementation Plans is how the costs, which are expected to be significant, will be funded. We, therefore, direct that the plans as set forth above must include cost estimates and rate impacts to enable the Commission to fully consider the impacts of the final adopted plan. Obtaining the greatest amount of safety value, i.e., reducing safety risk, for ratepayer expenditures will be an overarching Commission goal in reviewing the plans presented by the gas transmission system operators. Specific capital and expense amount for each component of the plans shall be separately stated with rate base amortization specified as well.

PG&E's plan must include a cost-sharing proposal between ratepayers and shareholders. As we noted when initiating this proceeding:

> The unique circumstances of PG&E's pipeline records and pipeline strength testing program for its pre-1970 pipeline may require extraordinary safety investments. Our ratemaking authority empowers this Commission to impose such ratemaking consequences as the public interest may require. See e.g., Cal. Const. Art. 12; Pub. Utils. Code §§ 701, 451 ("every public utility shall…maintain such…equipment and facilities…as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.") The extraordinary safety investments required for PG&E's gas pipeline system and the unique circumstances of the costs of replacing the San Bruno line are situations where this Commission may use its ratemaking authority to, for example, reduce PG&E's rate of return on specific plant investments or impose a cost sharing requirement on shareholders. We will consider these, and other ratemaking mechanisms, in this proceeding.[24]

As we indicated in that decision, we intend to take official notice of the record in other proceedings, including the investigation of PG&E's gas system record-keeping (R.11-02-016), in our ratemaking determination.

Therefore, each natural gas transmission operator in California must include in its implementation plan a ratemaking proposal with the following:

a. For PG&E only, proposed cost allocation between shareholders and ratepayers;

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24 Order Instituting Rulemaking 11-02-019 at 11-1 2.

b. Specific rate base and expense amounts for each year proposed to be included in regulated revenue requirement;

c. Proposed rate impacts for each year and each customer class; and

d. Other such facts and demonstrations necessary to understand the comprehensive rate impact of the Implementation Plan.

We anticipate that extensive hearings will be necessary to fully vet the plans and to evaluate the rate impacts. Customer notice will also be required, and the utilities should work with the Commission's Public Advisor in developing these notices. Additional public participation hearings may be required when the ratemaking issues become more clear. As we consider these important but costly safety improvements and the rate impacts on California's working families and businesses, we encourage the public to provide comment through our Public Advisors Office, the Commission's web site, and in writing.

4. Comments on Proposed Decision

The proposed decision of the ALJ in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on ____________________, and reply comments were filed on _______________________ by ______________________.

Findings of Fact

1. In Resolution L-410 and R.11-02-019, the Commission ordered PG&E, SoCalGas, SDG&E, and Southwest Gas Corporation to:

   a. Aggressively and diligently search for all as-built drawings, alignment sheets, and specifications, and all design, construction, inspection, testing, maintenance, and other related records, including those records in locations controlled by personnel or firms other than PG&E, relating to pipeline system components, such as pipe segments, valves, fittings, and weld seams for PG&E natural gas transmission lines in Class 3 and Class 4 locations and Class 1 and Class 2 high consequence areas that have not had MAOP established through prior hydrostatic testing. These records should be traceable, verifiable, and complete. (P-10-2) (Urgent)

b. Use the traceable, verifiable, and complete records located by implementation of Safety Recommendation P-10-2 (Urgent) to determine the valid MAOP, based on the weakest section of the pipeline or component to ensure safe operation, of PG&E natural gas transmission lines in Class 3 and Class 4 locations and Class 1 and Class 2 HCAs that have not had MAOP established through prior hydrostatic testing. (P-10-3) (Urgent)

2. PG&E has stated that it is not able to provide specific records of every component in its natural gas transmission pipelines.

3. SoCalGas and SDG&E have stated that it is very difficult, if not infeasible, to locate records for all pipeline materials in the specified areas.

4. MAOP determined by component calculation is useful for prioritizing segments for interim pressure reductions and replacement or pressure testing, but MAOP determined in this manner is not reliable enough for permanent pipeline operations.

5. Natural gas transmission pipelines (operating at a pressure producing a hoop stress of 20% or more of SMYS) placed in service in California after July 1, 1961 were required to be pressure tested per General Order 112; however,

pipelines installed before this date were exempted from pressure test requirements.

6. Natural gas transmission pipelines placed in service prior to 1970 were note required to be pressure tested, and were exempted from then-new federal regulations requiring such tests. These regulations allowed operators to operate a segment at the highest actual operating pressure of the segment during the five-year period between July 1, 1965 and June 30, 1970.

7. Natural gas transmission pipeline operators should be required to replace or pressure test all transmission pipeline that has not been so tested.

8. Technical workshops are needed to establish standards for determining whether pipeline segments should be replaced or tested, and the priority to be assigned to pipeline segments with different characteristics.

9. The unique circumstances of PG&E's pipeline records, the costs of replacing the San Bruno line, and the public interest require that PG&E's rate Implementation Plan include a cost sharing proposal.

Conclusions of Law

1. PG&E should be required to complete its MAOP determination based on pipeline features and should be allowed to use engineering-based assumptions for pipeline components where complete records are not available. Such assumptions must be clearly identified, based on sound engineering principles, and, where ambiguities arise, the assumption allowing the greatest safety margin must be adopted. The calculated values should be used to prioritize segments for interim pressure reductions and subsequent pressure testing.

2. SoCalGas and SDG&E should complete their work in response to the NTSB's recommendations and the Commission's order.

3. A pressure test record must include all elements required by the regulations in effect when the test was conducted. For pressure tests conducted prior to the effective date of General Order 112, one hour is the minimum acceptable duration for a pressure test.

4. No later than 60 days after the effective date of this order, all California natural gas transmission pipeline operators must file and serve a proposed Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan.

5. The Implementation Plan should reflect a timeline for completion that is as soon as practicable and provide for interim safety enhancement measures, including increased patrols and leak surveys, pressure reductions, prioritization of pressure testing for critical pipelines that must run at or near MAOP values which result in hoop stress levels at or above 30% of SMYS, and other such measures that will enhance public safety during the implementation period.

6. The Implementation Plan should set forth criteria on which pipeline segments were identified for replacement instead of pressure testing.

7. The Implementation Plan should include a rate proposal with the following:

   a. For PG&E only, proposed cost allocation between shareholders and ratepayers;

   b. Specific rate base and expense amounts for each year proposed to be included in regulated revenue requirement;

   c. Proposed rate impacts for each year and each customer class; and,

d. Other such facts and demonstrations necessary to understand the comprehensive rate impact of the Implementation Plan.

8. The Implementation Plan should priority rank and schedule for pressure testing pipeline not previously so tested, and may provide for MAOP reductions to the lowest of the following: (1) a level no greater than 80% of the reliably recorded MOP from January 1, 2006 to January 1, 2011, (2) the lowest MOP of any HCA segment (defined per 49 CFR, Part 192) on a pipeline for the five-year period preceding the date of the identification of the HCA segment or the level to which the segment was lowered after September 9, 2010.

9. The Implementation Plan should also address retrofitting pipeline to allow for in-line inspection tools and, where appropriate, automated or remote controlled shut off valves.

10. Technical workshops should be convened prior to the natural gas transmission operators filing their Implementation Plans as set forth in the Ordering Paragraphs.

11. This order should be effective immediately so that the natural gas transmission system operators can expeditiously develop their Implementation Plans.

O R D E R

Therefore, **IT IS ORDERED** that:

1. Pacific Gas and Electric Company must complete its Maximum Allowable Operating Pressure determination based on pipeline features and may use engineering-based assumptions for pipeline components where complete records are not available. Such assumptions must be clearly identified, based on sound

engineering principles, and, where ambiguities arise, the assumption allowing the greatest safety margin must be adopted. The calculated values must be used for interim pressure reductions and to prioritize segments for subsequent pressure testing.

2. Southern California Gas Company and San Diego Gas & Electric Company must complete their work in response to the National Transportation Safety Board's recommendations and the Commission's Resolution L-410.

3. A pressure test record must include all elements required by the regulations in effect when the test was conducted. For pressure tests conducted prior to the effective date of General Order 112, one hour is the minimum acceptable duration for a pressure test.

4. No later than 60 days after the effective date of this order, San Diego Gas & Electric Company, Southern California Gas Company, Southwest Gas Corporation and Pacific Gas and Electric Company must file and serve a proposed Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan (Implementation Plan) to comply with the requirement that all in-service natural gas transmission pipeline in California has been pressure tested in accord with 49 CFR 192.619, excluding subsection 49 CFR 192.619 (c). The Implementation Plan should start with pipeline segments located in Class 3 and Class 4 locations and Class 1 and Class 2 high consequence areas, with pipeline segments in other locations given lower priority for pressure testing.

5. The Implementation Plan must reflect a timeline for completion that is as soon as practicable, and include interim safety enhancement measures, including increased patrols and leak surveys, pressure reductions, prioritization of pressure testing for critical pipelines that must run at or near Maximum Allowable Operating Pressure values which result in hoop stress levels at or

above 30% of Specified Minimum Yield Stress, and other such measures that will enhance public safety during the implementation period.

6. The Implementation Plan must set forth criteria on which pipeline segments were identified for replacement instead of pressure testing.

7. The Implementation Plan must contain a priority-ranked schedule for pressure testing pipeline not previously so tested, and may provide for Maximum Allowable Operating Pressure reductions to the lowest of the following: (1) a level no greater than 80% of the reliably recorded maximum operating pressure from January 1, 2006 to January 1, 2011, (2) the lowest Maximum Operating Pressure of any High Consequence Area segment (defined per 49 CFR, Part 192) on a pipeline for the five-year period preceding the date of the identification of the High Consequence Area segment or the level to which the segment was lowered after September 9, 2010.

8. The Implementation Plan must consider retrofitting pipeline to allow for in-line inspection tools and, where appropriate, improved shut off valves.

9. The Implementation Plan must include best available expense and capital cost projections for each Plan component and each year of the implementation period. Although not the determinative factor, improved safety effects for amount expended must be considered in prioritizing projects. Segments with the highest risk, however, must be tested or replaced first.

10. The Implementation Plan must also include a rate proposal with the following:

a. For Pacific Gas and Electric Company only, proposed cost allocation between shareholders and ratepayers;

b. Specific rate base and expense amounts for each year proposed to be included in regulated revenue requirement;

c. Proposed rate impacts for each year and each customer class; and

d. Other such facts and demonstrations necessary to understand the comprehensive rate impact of the Implementation Plan.

11. As soon as practicable after the effective date of this order, the Commission's Chief Administrative Law Judge shall designate a facilitator for technical workshops for California natural gas transmission pipeline operators and pipeline safety experts. The purpose of the workshops shall be to discuss and provide recommendations for California's natural gas transmission system operators on their Implementation Plans, including assisting in prioritizing segments for replacement or pressure testing. The workshops may survey best practices in other states for addressing natural gas pipeline that has not been pressure-tested, seek advice from industry experts or federal authorities, and take such actions as are necessary to inform itself as to the optimum means of addressing the technical issues in this proceeding. The workshops will consider this information in developing the best practices for use in California. Written reports may be prepared and circulated.

12. The Commission's Consumer Protection and Safety Division shall participate in the technical workshop and may submit periodic reports to Commission or otherwise bring forward any urgent issues.

13. Rulemaking 11-02-019 remains open.

This order is effective today.

Dated _____________________________, at San Francisco, California.