# **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)

# REPORT OF PACIFIC GAS AND ELECTRIC COMPANY ON RECORDS AND MAXIMUM ALLOWABLE OPERATING PRESSURE VALIDATION

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Pursuant to Ordering Paragraph 3 of the Commission's Order Instituting Rulemaking, Pacific Gas and Electric Company (PG&E) submits this status report on the first phase of its efforts to validate its gas transmission records and the maximum allowable operating pressure (MAOP) of each of its gas transmission pipelines.<sup>1</sup>

# I. INTRODUCTION

Since the September 9, 2010 accident in San Bruno, PG&E has taken significant steps to improve the operations and safety of its natural gas system. We are committed to learning from the San Bruno tragedy, incorporating the lessons learned into our operations, and sharing those lessons with the rest of the industry. PG&E's efforts include, among others, taking steps to validate and enhance its record-keeping practices, as reported here. This report also describes

<sup>&</sup>lt;sup>1</sup> The Commission directed PG&E to validate its records for its gas transmission lines in Class 3 and Class 4 locations and Class 1 and 2 high consequence areas (HCAs). This is not the definition of HCAs that PG&E uses for its integrity management program. Nevertheless, for ease of reference, in this report PG&E uses "HCAs" to refer to all the pipe segments in Class 3 and Class 4 locations and Class 1 and 2 HCAs, and phrases such as "HCA pipelines" and "HCA miles" to refer to the pipelines covered by the records validation, not PG&E's integrity management program.

PG&E's plan to inspect and field test its pipelines, including hydrostatically testing or replacing approximately 150 miles of HCA pipeline segments this year.

Effective July 1, 1961, with its first gas pipeline General Order (GO) 112, the Commission required new pipelines in California to be pressure tested before being put into service. Federal law adopted a similar requirement in 1970. Thus, all PG&E pipelines installed after July 1, 1961 would have been pressure tested under the California or federal requirement.

To date, PG&E has identified records of pressure tests for 91% its post-July 1, 1961 HCA pipeline segments, and more than 30% of the HCA pipelines installed before that date. While we have made good progress, we are not satisfied with these results and will continue to search for and review our files for the remaining pressure test records and provide the Commission with regular updates on our efforts.<sup>2</sup>

PG&E establishes the MAOP of its pipelines pursuant to the Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations, which the Commission adopted unchanged in General Order (GO) 112-E. Under the state and federal regulations, MAOP may be determined in three ways: (1) by use of design pressure information on all pipeline components, where such information is available; (2) by a pressure test; or (3) for pipelines installed prior to July 1, 1970, by means of 49 C.F.R. § 192.619(c) (Section 619(c)).<sup>3</sup> Section 619(c) provides for the determination of the MAOP of a pipeline segment based on the highest

<sup>&</sup>lt;sup>2</sup> Following the Commission's January 3, 2011 directive, PG&E mobilized hundreds of employees and external resources to gather, scan, and analyze approximately 1.25 million records. Many of these teams have worked in shifts, 24 hours a day, seven days a week. PG&E also contacted more than 37,000 current and former employees and contractors in an effort to determine whether they had any relevant documents that were not in PG&E's possession. While we have made significant progress, our efforts are ongoing.

<sup>&</sup>lt;sup>3</sup> Although the January 3, 2011 urgent safety recommendation of the National Transportation Safety Board (NTSB) called on PG&E to review its records and validate the MAOP of its gas transmission lines, nothing in the NTSB's public reports to date suggests that the MAOP of the segment of Line 132 that ruptured was not properly established under Section 619(c).

actual operating pressure between July 1, 1965 and June 30, 1970. PG&E has identified pressure test records and/or other records reflecting the historical operating pressure for nearly 92% of HCA pipeline segments installed prior to July 1, 1970,

During the NTSB hearings on March 1 - 3, 2011, it was suggested that it may be appropriate to reevaluate Section 619(c). PG&E supports a thoughtful review and enhancement of existing safety standards, including phasing out the use of historic operating pressure to establish MAOP of pipelines in California and nationally. PG&E believes the Commission should use this Rulemaking to consider adopting new pipeline testing standards and methods of establishing MAOP. Any new regulatory standard should include a reasonable transition period to avoid potentially significant impacts to customers.

PG&E plans to aggressively inspect, field test, and potentially replace many of its pipeline segments within HCAs. This year PG&E will hydrostatically test or replace approximately 150 miles of HCA pipeline segments with records similar in vintage or other characteristics to the records for the segment involved in the September 9, 2010 accident in San Bruno.

PG&E will expand its field action and inspection program to certain other HCA pipeline segments as rapidly as possible. Tests will include in-line inspections with "smart pigs" and new camera inspection technologies, as well as pressure testing. When indicated by field testing or engineering analysis, PG&E will excavate, further inspect and/or replace pipelines. This plan will be informed by the final NTSB report and this Rulemaking, and may be further refined as appropriate.

The next section of this report outlines the relevant requirements for documenting MAOP. Section III describes PG&E's MAOP validation approach. Section IV contains the

results of the MAOP records validation in more detail. Section V sets forth a timeline and plan for PG&E's validation field work, testing or pipe replacement activities, and discusses the potential customer impacts of additional pressure reductions.

PG&E will be posting on www.pge.com maps showing its gas transmission pipelines, the HCA pipelines subject to this record validation, the pipelines for which PG&E has not yet located records, and the pipelines PG&E plans to hydro test or replace this year.

# II. APPLICABLE REQUIREMENTS FOR DOCUMENTING MAOP

Neither the federal regulations in 49 C.F.R. Part 192 nor the Commission's GO 112-E specify what records must be maintained to substantiate MAOP.<sup>4</sup> Both PHMSA and CPUC regulations establish recordkeeping obligations with specificity in various areas,<sup>5</sup> but none are specific to MAOP documentation. Instead, the applicable pipeline safety regulations allow for a practical evaluation of what records are deemed sufficient, using a common sense "best information available" standard, on a case by case basis.<sup>6</sup>

 $\frac{5}{2}$  See, e.g., 49 C.F.R. §§ 192.491(a) – (c); 192.517(a), (b); 192.553(b); 192.709(a), (b); 192.807(b), all requiring certain records to be maintained for either five years or the useful life of a pipeline.

<sup>&</sup>lt;sup>4</sup> The PHMSA regulations are silent with respect to what records must be retained to substantiate MAOP under any of the three permissible methods, other than the broadly stated requirement to "keep records necessary to administer the procedures established" in each company's Operations Manual. 49 C.F.R. § 192.603(b). The Commission's regulations in GO 112-E are similarly general, requiring utilities to "maintain the necessary records to ensure compliance with these rules and the Federal Pipeline Safety Regulation, 49 CPR [sic], that are applicable." Until the adoption of GO 112-E in 1995, the Commission's former requirements extended to "[p]lans covering operating and maintenance procedures, including maximum actual operating pressure to which the line is intended to be subjected. . . ." In D.95-08-053, adopting GO 112-E, the Commission that remains in the GO today.

<sup>&</sup>lt;sup>6</sup> In guidance on integrity management, PHMSA stated: "Operators should use the best information they have available . . ." PHMSA FAQ-205 (issued in response to the question of whether original pressure test recording charts or other source documents must be provided; raised in the context of implementing integrity management programs).

Of the three methods to establish MAOP, only pressure testing is associated with any express recordkeeping requirements, and PG&E has already identified pressure test records for more than 93% of its post-July 1, 1970 HCA pipelines. Where a pressure test has been performed under Subpart J of the regulations, a specific PHMSA recordkeeping provision applies (without reference to MAOP). That provision, first effective in 1970, states that operators shall create and retain "for the useful life of the pipeline," a record of each pressure test that contains at least the following information: (1) the operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used; (2) test medium used; (3) test pressure; (4) test duration; (5) pressure recording charts, or other record of pressure readings; (6) elevation variations, whenever significant for the particular test; and (7) leaks and failures noted and their disposition. 49 C.F.R. § 192.517(a). Until it adopted the 1970 federal regulations, the Commission did not require retention of pressure test records.

The regulatory requirements applicable to gas transmission pipe have changed over the years. The requirements fall into three general vintages: (1) pipe installed prior to July 1, 1961; (2) pipe installed between July 1, 1961 and June 30, 1970; and (3) pipe installed July 1, 1970 and later. Pressure testing was not required by either State or federal law prior to 1961; for pipe installed between July 1, 1961 and June 30, 1970 the Commission required pressure tests; and after 1970 federal law required pressure tests on all newly constructed pipe. As described in more detail below, PG&E has undertaken extensive efforts to collect all relevant records, and these records have been organized in accordance with the applicable legal requirements by installation date. For those segments where MAOP was established by pressure test, the relevant records may include a variety of materials meeting 49 C.F.R § 192.517(a). Where MAOP was

determined pursuant to Section 619(c), the relevant records may include a variety of documents that support the actual operating pressures experienced in the five years prior to July 1, 1970.

When it first adopted pipeline safety rules in 1960, this Commission made clear that the rules in GO 112 were not to be applied retroactively to existing installations "insofar as design, fabrication, installation, established operating pressure, and testing are concerned."<sup>7</sup> Congress made a similar policy decision in the Natural Gas Pipeline Safety Act of 1968 by precluding the application of new design, installation, construction, initial inspection and initial testing standards to existing pipelines.<sup>8</sup> The NTSB and Commission request for "traceable, verifiable and complete" records supporting PG&E's MAOP determinations must be viewed in light of the legal requirements applicable at the time the records were created. To do otherwise would be to establish an *ex post facto* standard that no utility could meet.

Although PG&E supports the reevaluation and enhancement of existing safety standards, any new rule should include a reasonable transition period to avoid potentially widespread service interruptions to customers in PG&E's service territory, throughout California and across the United States. Nevertheless, as described below PG&E plans this year to hydrostatically test (hydro test) or replace approximately 150 miles of HCA pipelines. Thereafter, PG&E will conduct field tests on the remaining HCA pipelines that have not been pressure tested.

## III. PG&E'S PHASED MAOP VALIDATION APPROACH

PG&E has approximately 1,805 miles of gas transmission pipeline subject to the current records review and MAOP validation effort. The 1,805 miles are Class 3 and 4 locations and Class 1 and 2 HCAs identified by PG&E's Geographical Information System (GIS) system throughout PG&E's service territory. GIS is the system PG&E uses to determine the class

<sup>&</sup>lt;sup>2</sup> See GO 112, § 104.3 (adopted December 28, 1960).

<sup>&</sup>lt;sup>8</sup> See Pub.L. 90-481, sec. 3(b), 82 Stat. 720 (August 12, 1968).

location of its pipelines and what segments are in HCAs. For the present review, PG&E only used the GIS system to identify the 1,805 miles of HCA pipe to examine. The rest of the review has been done by collecting and examining underlying records.

PG&E's MAOP validation effort is divided into three phases, outlined below.

#### A. Phase 1: Records Collection, Review and Validation

Phase 1 of PG&E's MAOP validation effort has focused on collecting and reviewing pipeline records to determine whether PG&E has "traceable, verifiable, and complete" records of (1) pressure tests on HCA transmission pipelines; and (2) a pipeline's highest actual operating pressure from July 1, 1965 through June 30, 1970, for HCA pipelines installed prior to 1970 where the MAOP was established pursuant to Section 619(c).

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.

For purposes of this report, "traceable, verifiable and complete" pressure test records are records that 1) contain each of the four elements described below, and 2) correlate to a specific pipeline or section. Consequently, in Phase 1, PG&E first confirmed that a pressure test record exists for a particular job number by focusing on the "Strength Test Pressure Report" (STPR) that is completed for each pressure test. The following is an example of an STPR:

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While the STPR was the primary source document for verifying pressure tests, PG&E also used other available records that contain information about pressure tests, including STPR charts such as the following:



In addition to these documents, a 1968 report PG&E submitted to the Commission documents both pressure tests and the establishment of the MAOP based on actual operating The Commission's D.73223 (October 24, 1967) required all California gas pressures. corporations to submit a report describing existing pipelines operating or intended to be operated at or above 20% of specified minimum yield strength (SMYS). The Commission directed that the report include MAOP and corresponding hoop stress, description and physical characteristics of the pipeline, and initial or most recent test data. The following is a sample page from PG&E's report, submitted to the Commission in May 1968:

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For the present report, PG&E deemed "complete" pressure test records to be those that contain the following four elements: 1) name of operator, 2) test pressure, 3) test duration, and 4) test medium. If the initial review of the records did not include all four of these elements, additional analysis was required to determine if other sources of information were available to substantiate the prior pressure test. As reported below, PG&E considers those pressure tests identified as "partial record" to be reliable documentation of the completion of a pressure test, even though the currently available records only contain two data elements, generally pressure and operator name. The 1968 CPUC filing contains the year of the test, the test pressure and the medium. The Commission accepted this report without challenge, underscoring its reliability.

49 C.F.R. § 192.517(a) includes three additional recordkeeping elements: "(5) Pressure recording charts, or other record of pressure readings; (6) Elevation variations, whenever significant for the particular test; and (7) Leaks and failures noted and their disposition." With respect to "(5) Pressure recording charts, or other record of pressure readings," the STPR contains a field for contemporaneous entry of the pressure reached, which is "[an]other record of pressure readings." Wherever available, PG&E confirmed that the pressure reached on the pressure chart correlated with the pressure entered on the STPR. Elevation variations, and leaks and failures and their disposition, would not logically exist for every pressure test, but only those where elevation variations were significant for the test or where leaks were found. PG&E documented these elements when applicable and available.

PG&E's validation of records supporting the 1965-1970 highest operating pressure for pipelines with MAOPs established under Section 619(c) used a variety of PG&E business records that represent the "best information available," consistent with PHMSA guidance. The starting point was operating documents, such as the following pressure log:

#### MAXIMUM OPERATING PRESSURE

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The records reviewed also included (a) the 1968 CPUC report, discussed above; (b) a chart of Maximum Operating Pressures (MOPs) and MAOPs compiled between November 1973 and March 1975 by Steven Phillips, then a Gas Engineer in the Codes and Standards Section of PG&E's Gas System Design department, with input from Robert Becken, also a Gas Engineer in the Gas System Design department; (c) the Appendix A to PG&E's Standard Practice 463-8, effective May 1, 1975, documenting MOPs and MAOPs, worked on by Mr. Phillips' successor, James Grinstead, from April 1975 to mid-1976; and (d) Drawing 086868. Declarations from Mr. Phillips, Mr. Becken and Mr. Grinstead, detailing their work, are attached to this report as

Attachments A, B and C, respectively. As described in Mr. Becken's declaration, Drawing 086868 too the place of the MAOP appendix to the Standard Practice in 1979 and has been updated regularly since that time (it is currently issued in Rev. 20). One page from the chart prepared by Mr. Phillips is Exhibit A to his declaration and Exhibit B to Mr. Becken's declaration; a copy of the entire document is being provided separately to the Commission's Consumer Protection and Safety Division (CPSD). Standard Practice 463-8, effective May 1, 1975, is Exhibit A to Mr. Grinstead's declaration, Exhibit B to Mr. Phillips' declaration and Exhibit A to Mr. Becken's declaration. The first version of Drawing 086868 (1979) is Exhibit C to Mr. Becken's declaration. These business records, compiled from other PG&E business records and from reports from employees with personal knowledge of the actual operating pressures are more than sufficient documentation under Section 619(c).

#### **B.** Phase 2: MAOP Validation of HCA Pipelines

From the work completed to date, PG&E has verified that the records it has identified support the MAOP for about 95% of the miles of HCA pipe whose MAOP was established pursuant to Section 619(c). PG&E's Phase 2 MAOP validation effort will focus on completing the verification that the documents identified in Phase 1 support the MAOP of each HCA segment and analysis of not only the pipeline segments but also each component within the HCA pipeline system (e.g., valves, fittings, etc.) to validate the MAOP of the overall system. That process will begin with a more comprehensive examination of the records PG&E has collected and centralized through the Phase 1 effort, in addition to excavation and field testing of pipeline systems as appropriate. PG&E expects to complete this more comprehensive Phase 2 MAOP validation analysis by the end of 2011, and will provide periodic progress reports to the Commission.

## C. Phase 3: Extension of Phase 1 & 2 to Remaining Gas Transmission Lines

PG&E's Phase 3 MAOP validation work will extend the work performed in Phase 1 and Phase 2 to the remainder of PG&E's gas transmission lines. In this effort, PG&E will apply the same rigor initially applied to the 1,805 miles of Class 3 and 4, and Class 1 and 2 HCA lines across its entire transmission system. Phase 3 is forecast to begin in the spring of 2011, and is expected to be completed by the end of 2012.

# IV. RECORDS VALIDATION RESULTS TO DATE

The following table shows the results to date of PG&E's Phase 1 records review:

Records	Installed Before 7/1/1961	Installed 7/1/1961 to 6/30/1970	Installed 7/1/1970 and after	Total
Pressure Test (Complete Record)	88	273	658	1,018*
Pressure Test (Partial Record)	79	34	19	133
Pressure Test (1968 CPUC Filing)	56	4	N/A	59
Section 619(c) Documentation	425	30	N/A	455
Still Reviewing Records	76	12	52	140
Total Miles	723**	353	729	1805
% Pressure Test Records	31%***	88%	93%	67%
% Pressure Test Records or	90%	97%		
Section 619(c) Documentation	9	2%	93%	92%

# MILES OF PIPE RECORDS BY INSTALLATION DATE

\* For approximately 270 miles of the lines for which PG&E has verified pressure test documentation, the STPR footage tested does not equal the pipeline HCA footage. PG&E will further analyze all job-related documents such as construction field drawings, sketches, letters, and job notes to confirm that all relevant portions of the line have been pressure tested.

\*\* Total does not sum due to rounding.

\*\*\* Pressure testing was not required before July 1, 1961.

PG&E is providing CPSD with eight DVDs that include all the documents identified in this first phase. Because many of those documents contain employee names, PG&E is

submitting them under Public Utilities Code § 583. PG&E will promptly redact the employee names and then make the DVDs available to all interested parties.

PG&E is continuing to collect and review records for all 140 miles identified in the table as still under review. The 88 miles of pre-July 1, 1970 pipelines still under review should be viewed in historical context. First, no regulation required PG&E to retain the underlying pressure records prior to July 1, 1970. The Commission's first recordkeeping requirements called for gas utilities to maintain "plans covering operating . . . procedures, including maximum allowable operating pressure," but not any of the underlying documents supporting the determination of the MAOP. Second, most of the continuing review of these records involves a painstaking manual process of trying to match the descriptions in documents 35 or more years old with current pipeline segment designations.

## V. FIELD PLAN OF ACTION AND POTENTIAL CUSTOMER IMPACTS

In addition to the continued records validation described in Section III, PG&E is immediately moving forward with a plan of field actions, starting this year with hydro testing or replacing 152 miles of HCA pipelines.

#### A. Field Plan of Action

Phase 1 of the current records analysis identified 699 pipeline segments – approximately 152 miles – for which PG&E has not located pressure test records and for which the records indicate the segments contain either: 1) pre-1962 24 to 36 inch double submerged arc welded (DSAW) pipe or 2) pre-1974 seamless pipe greater than 24 inches in diameter. PG&E selected these criteria for this year's field actions because their records have common characteristics with the records for the ruptured segment of Line 132.

Of these 152 miles, 80 are on PG&E's backbone transmission lines 300A, 300B and 400.<sup>9</sup> The remaining 72 miles are on PG&E's local transmission lines. As discussed in more detail below, PG&E plans to hydro test or replace all 152 miles of pipe this year. PG&E plans to hydro test or replace this pipe because those are the shortest lead-time options. Making a line capable of in-line inspection can take two or more years, and other inspection technologies, which may be suitable in the future are not yet sufficiently proven. After this initial phase, PG&E will perform field work on the remaining 436 miles of HCA pipelines that have not been pressure tested or that have potential issues identified by the industry (as described in subsection 2 below).

## 1. <u>2011 Hydro Testing Or Pipe Replacement</u>

The 152 miles of HCA pipe PG&E plans to hydro test or replace this year are spread over 24 pipelines. Because the miles of each pipeline are not contiguous and are not always located near valves, PG&E's work will extend over more than 250 miles of pipelines. The following table lists the pipeline route, mileages and proposed actions:

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<sup>&</sup>lt;sup>9</sup> The "backbone," or mainline transmission pipelines are those that interconnect with interstate pipelines at the Oregon and Arizona border, respectively, to bring natural gas into California from Canada and the U.S. Southwest region. The backbone also includes the Bay Area loop, Lines 107, 114, 131, and 303.

			Pipe Miles to be Tested/	
Douto No	# of Tooto*	Miles Torgeted	Replaced in	Dreneged Action
	# of Tests"	willes l'argeted	2011	Proposed Action
L-021A	2	0.09	3.55	Hydro test two sections
L-101	4	0.29	0.79	Hydro test four sections
L-105A	2	3.86	5.35	Hydro test two sections
L-105A-1	0	0.004	0.004	Replace one small segment
L-105C	1	1.57	1.76	Hydro test one section
L-105N	4	4.29	14.49	Hydro test four sections
L-107	2	1.86	3.89	Hydro test two sections
L-109	0	1.38	2.00	Replace pipe from 2011 to 2014
L-114	1	0.06	0.06	Replace one small segment
L-131	5	4.53	16.61	Hydro test five sections
L-132	8	30.86	44.34	Hydro test eight sections
L-132A	1	0.81	1.46	Hydro test one section
L-147	1	0.96	3.23	Hydro test one section
L-153	4	19.73	19.73	Hydro test four sections
				Hydro test two sections
L-191	2	3.95	7.37	Replace one small segment
L-300A	23	38.36	51.63	Hydro test 23 sections
L-300A-1	1	0.61	0.61	Hydro test one section
L-300B	22	33.43	55.97	Hydro test 22 sections
				Hydro test one section
L-301G	1	0.02	0.61	Replace two small segments
L-400	7	0.74	11.51	Hydro test seven sections
L-400-3	1	0.87	4.01	Hydro test one section
				Hydro test two sections
SP - 3	2	0.49	5.75	Replace two small segments
SP - 5	1	3.05	3.87	Hydro test one section
0821-01	0	0.002	0.002	Replace one small segment
	95	151.83	258.60	

\* The number of tests may change depending on elevation issues of it additional records are found during the engineering phase showing that these segments have already been hydro tested.

PG&E's 2011 plan will require multiple hydro testing crews working simultaneously. PG&E estimates that each hydro test will require approximately two weeks, taking into account set up, testing, clean up and water disposal and an additional period for any potential remedial action the hydro test indicates to be necessary. PG&E anticipates conducting at least 95 hydro tests to cover the 152 miles of pipe. Scheduling this much work will be complex since electric generation loads peak in July and August, limiting the ability to shut down pipelines during those months. PG&E believes this plan, while aggressive, will give it the flexibility to reschedule and rearrange work if necessary due to gas capacity constraints or emergency repairs or replacements on the system. Recognizing the importance of this work, PG&E has already begun to prepare the applications for the necessary permits from the federal, state and local governments (e.g., encroachment, water disposal). Timely receipt of all necessary permits is a key factor in PG&E's ability to execute this work plan this year, and PG&E will use all means available to expedite them.

## 2. <u>Other Field Actions</u>

Beyond this work, PG&E has prioritized for further assessment approximately 435 miles of HCA pipelines for which PG&E has not yet located pressure test records and that meet the following criteria (in priority order): 1) pipelines containing low frequency electric resistance weld (ERW), single-submerged arc weld (SSAW), lap weld or flash pipe installed prior to 1970; 2) pipelines installed prior to 1970; and 3) pipelines installed after 1970.

The field action program on these additional 435 miles of HCA pipeline will be based on further analysis of and tailored to the unique characteristics of each pipeline. In some cases, it will be most appropriate to perform in-line inspections with so-called "smart pigs" equipped with special "crack" tools capable of examining weld seams; this may require physical modifications to the pipeline to allow in-line inspection. In other cases, where the physical configuration of a pipeline cannot currently accommodate "smart pig" technology and modifications are too difficult or time-consuming, a pressure test may be performed. In addition, other emerging technologies, such as advanced camera inspection, may soon be applied to multi-diameter pipelines without taking those lines out of service. These state-of-the-art technologies could become the quickest and most effective method of verifying the weld and seam characteristics on a pipeline. Finally, in some instances, it may make sense to simply replace the pipe altogether. Many pipelines will require a combination of actions that will best serve the overall pipeline system.<sup>10</sup>

In the months since the San Bruno accident, PG&E has worked aggressively to develop its Pipeline 2020 Program. A key component of that program is PG&E's pipeline modernization decision model based on the underlying principles of pipeline integrity management. This model considers for any given pipeline a wide range of factors, including age, manufacturer, size, weld type, corrosion, ground conditions, and class location, among others, in determining the most appropriate field action. PG&E is applying this "decision tree" model to determine the most appropriate field action for the 435 miles of HCA pipeline described above.

These field actions are both ambitious and foundational to PG&E's commitment to operating all of its pipelines at pressures that safely provide reliable natural gas service to its customers. The work ultimately performed will be an iterative process. Some of the work will be determined by the results of other physical inspections, such as excavations, that may indicate, for example, that immediate pipe replacement makes more sense than pressure testing. Other important considerations that will impact both the timing and field assessment method used will include whether PG&E can obtain timely access to the pipeline area to safely excavate and test the line, timely obtain any required land rights, local and state water disposal (in the case of hydro testing) and excavation or encroachment permits, and provide for adequate back up natural gas facilities in order to minimize the impacts on customer use.

PG&E will work with state and local government agencies and officials, emergency responders and customers in the areas where PG&E intends to perform these field actions. To

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See Kiefner & Associates, Inc., "The Benefits and Limitations of Hydrostatic Testing" by J. Kiefner and W. Maxey, pp 5-6. http://www.kiefner.com/downloads/apihydro.pdf.

provide the Commission and the public with transparency into this work, PG&E will submit periodic progress reports to the Commission updating its progress and the latest schedule of field actions.

In addition, much of this work will overlap with the policies and practices the Commission is developing in this proceeding as well as Phase 2 of PG&E's A.09-09-013 (Gas Transmission & Storage Rate Case). As the Commission considers and adopts rules for all California natural gas pipelines, PG&E may revise the scope and/or timeline of these field actions to be consistent with the Commission's developing policies. This plan will be further informed by and refined after the final NTSB report. PG&E also anticipates that the costs associated with these field actions will be raised and resolved in the Commission's Rulemaking; however, PG&E is not waiting for resolution of cost recovery issues to begin the field actions identified above.

## **B.** Additional Pressure Reductions Could Adversely Impact Customers

As noted above, PG&E has documented pressure test records or historical operating pressures for over 90% of the 1,805 miles of HCA pipelines on its transmission system. PG&E has already reduced pressure to 80 percent of MAOP on over 190 miles of 10 pipelines and distribution feeder mains. Additional reductions could compromise PG&E's ability to execute substantial planned pressure testing this year. Even more significant, further pressure reductions could jeopardize PG&E's ability to meet customers' natural gas needs and may create serious public safety risks.

The mileages for which PG&E is still reviewing records and for which it plans hydro testing in 2011 may seem relatively modest, but they represent only the HCA portions of PG&E's pipelines. Pressure reductions affect not just the HCA segments, but the entire pipeline and, depending on the location of the pipeline in the system, may affect other interconnected pipelines as well. For example, 80 miles of the HCA pipe PG&E is going to hydro test or replace this year is on its backbone system. A pressure reduction on these 80 miles of HCA pipe would affect more than 1,300 miles of total backbone pipeline or nearly 25% of PG&E's transmission system.

The backbone system not only serves to bring natural gas into California, the large quantity of gas in the backbone pipelines also provides a form of storage for the entire system, helping to meet the daily and hourly changes in system demand and providing the capacity to inject gas into storage. PG&E estimates that a 20 percent pressure reduction on the backbone system would reduce system inventory capacity by as much as 67 percent and storage injection by 10 percent. In addition, a pressure reduction on the backbone would result in substantially more frequent Operational Flow Orders (OFO), significant risk of Emergency Flow Orders (EFO), and a risk of uncontrolled customer outages.

In periods of high natural gas usage, reduced backbone pressure and the associated diminished capacity can cause uncontrolled customer outages when pipeline pressure is insufficient to meet demand, creating significant public safety risks. This can happen both in winter, when heating demand for natural gas is high, as well as on hot summer days when electric generation units draw heavily on natural gas supplies to meet peak electric generation demand. In an uncontrolled outage, the public safety risk is heightened because pipeline pressure decreases to the point that customer pilot lights go out, while residual gas remains in the system that could migrate back into homes and businesses, and ignite.

To avoid the safety risks associated with uncontrolled outages, PG&E would need to implement controlled curtailments in such situations. In a controlled curtailment PG&E must shut off service proactively to both residential and business natural gas customers in the affected

region. A controlled curtailment can last for many days, and can happen at any time of year. As noted above, the natural gas transmission system experiences peaks not only in the cold winter months due to customer heating demand but also in the summer when natural gas-fired electric generation helps to meet high cooling demand. In a controlled curtailment PG&E must close multiple valves controlling supply to an area or neighborhood in order to deplete the pressure on the line, and then individually turn off every residential or business meter and service valve in that area. The pipeline system must then be purged of natural gas to eliminate any air that may have entered the de-pressurized system. Natural gas service can only be safely restored on a customer-by-customer basis, because at each residence or business PG&E must open the service valve, check for leaks, re-light pilot lights and check appliances. Depending on the number of customers impacted, this process can take weeks, or even months.<sup>11</sup>

The impact of further pressure reductions is not limited to the extreme energy demands associated with very cold winter or very hot summer days; additional reductions are also likely to affect normal operations, maintenance and important system improvements. For example, PG&E uses the milder springtime months to buy natural gas at lower prices and inject it into storage for later use during those more extreme temperature days of winter and summer. Wholesale shippers, who supply gas to many noncore customers on PG&E's system, do the same. With lowered system capacity, it is likely storage injection will be insufficient to meet peak demands of all customers this coming winter. Further, as part of its Pipeline 2020 Program, PG&E has committed to install more than a dozen automated or remote shut-off valves as part of

<sup>&</sup>lt;sup>11</sup> PG&E can only estimate the amount of time it would take to complete service restoration to potentially tens of thousands of business and residential natural gas customers. PG&E has had little experience with natural gas controlled curtailments for residential customers on a large scale; however, because it is necessary to visit, inspect and test each service connection individually, the process is likely to take much longer than electric customer restoration.

a pilot program this summer. To execute this pilot program effectively, it will be necessary to have a pipeline system that offers the greatest flexibility, or redundancy, to reroute supplies while those valves and their related infrastructure are installed on other sections. In other cases, the ambitious pipeline testing program PG&E will begin this spring may entail taking significant sections of natural gas transmission lines out of service for days or weeks at a time, which will reduce system flexibility and system redundancy. Virtually every action PG&E takes – whether testing, repair, replacement or upgrade – requires taking part of a pipeline out of service. Pressure reductions on other pipelines diminish PG&E's ability to use alternate means to serve customers during such planned outages.

The impact of a 20 percent pressure reduction on local transmission can also be severe even without backbone pressure reductions. Depending on the location and scope of additional reductions, residential and business customers could experience interruptions in service. The following table sets forth two examples of the effect on a moderate winter day of a 20 percent pressure reduction on local transmission alone:

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	Local	Local Transmission	
<b>D</b>	Transmission	Miles	Consequences
Pipe segments without complete pressure test records and with pre-1962 24 to 36 inch double submerged arc welded (DSAW) pipe or what is recorded as pre-1974 seamless pipe greater than 24 inches in diameter	72	570	<ul> <li>Core residential and small business customers curtailed 20 - 30 days/yr</li> <li>20,000 - 50,000 people affected (7,000 - 15,000 accounts)</li> <li>Noncore curtailed 35 - 40 days/yr</li> </ul>
Pipe segments described above plus segments containing low frequency electric resistance weld (ERW), single- submerged arc weld (SSAW), lap weld or flash pipe installed prior to 1970	362	2,700	<ul> <li>Core residential and small business customers curtailed 10 – 35 days/yr</li> <li>85,000 - 170,000 people affected (28,000 - 57,000 accounts)</li> <li>Noncore (including refineries and electric generation) curtailed significantly 20 – 70 days/yr</li> </ul>

The curtailments illustrated above are based on a moderate winter day. On a cold winter day or during a stage 1 or stage 2 abnormal peak day, the curtailments – including core residential and small business customers – would be far more extensive. For example, under cold weather that could occur as often as once every four years, approximately 80,000 to 500,000 core residential and small business accounts could be curtailed, impacting about 250,000 to 1.5 million people. For cold weather that occurs about once every 20 years, approximately 150,000 to 775,000 core residential and small business accounts could be curtailed, impacting as many as 450,000 to 2.3 million people. Such widespread losses of heat to residential customers during very cold weather would pose significant health and safety risks.

PG&E believes its ambitious pipeline testing plan, together with the pressure reductions already implemented, provide an additional margin of safety in its pipelines while validating the field safety of those lines, and maintaining reliable service to customers. Significant additional pressure reductions could jeopardize PG&E's ability to execute the proposed field action plan described above and to serve its customers. Such pressure reductions could well create public health and safety risks far exceeding any perceived public safety benefit from reduced pipeline pressure.

## VI. CONCLUSION

PG&E is committed to operating and maintaining its gas and electric facilities with safety as the first priority and in full compliance with federal, state and local requirements. We pledge to learn from the San Bruno accident and to turn those lessons into actions that will improve overall system performance, and benefit the country's natural gas pipeline industry as a whole.

The work described here to continue PG&E's records review, comprehensively validate MAOP of its pipelines, and act decisively to hydro test or replace 150 miles of HCA pipelines this year, and extend its field work thereafter, are additional foundational steps in that direction.

We believe the highly aggressive plan for inspections and testing proposed here is the right step toward enhancing public safety across our service area. We have worked hard to develop a plan that strikes the right balance between accelerating our steps to strengthen pipeline integrity while simultaneously preserving our ability to safely and reliably provide natural gas service to our customers through all seasons. We intend to work closely with state and local

agencies, elected officials, emergency responders and customers to expedite our work and minimize any disruptions in service to our customers.

Respectfully submitted,

/s/ Jonathan D. Pendleton

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JOSEPH M. MALKIN Orrick, Herrington, & Sutcliffe LLP The Orrick Building 405 Howard Street San Francisco, CA 94105 Telephone: (415) 773-5505 Facsimile: (415) 773-5759 Email: jmalkin@orrick.com

Attorneys for PACIFIC GAS AND ELECTRIC COMPANY

March 15, 2011

Attachment A

## **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)

#### **DECLARATION OF STEVEN H. PHILLIPS**

I, STEVEN H. PHILLIPS, do declare:

- I am currently the Senior Manager for Office Services in the Customer Operations Department at Pacific Gas and Electric Company ("PG&E"). I have held this position at PG&E since August 2007. I am a California Registered Professional Mechanical Engineer and my registration number is M-17772. I have personal knowledge of the following facts and, if called as a witness, would testify thereto.
- 2. I began employment with PG&E in May of 1973. From November 1973 through March 1975, I worked as a Gas Engineer in the Codes and Standards Section of the Gas System Design Department. As a Gas Engineer in the Codes and Standards Section, I was among those responsible for PG&E's compliance with state and federal regulations regarding gas transmission facilities. The Supervising Engineer for whom I worked was Phillip Lathrap.
- 3. Just prior to my joining the Gas System Design Department, on April 30, 1971, the California Public Utilities Commission ("CPUC") rules regarding gas system safety requirements (GO 112-C) were revised to add a new requirement that transmission pipeline operators establish the Maximum Allowable Operating Pressure ("MAOP") of all gas transmission pipelines at the highest pressure each pipeline had experienced

during the five-year period between July 1, 1965 and July 1, 1970 ("Five-Year Period"), unless that pipeline had been properly pressure tested or uprated to a higher MAOP.

- 4. In response to this new requirement, one of the major projects I took a lead role on from November 1973 to March 1975 was the effort to verify and centrally record the MAOPs for PG&E's natural gas pipelines operating at or above 20% of specified minimum yield strength ("SMYS") in service at that time ("Transmission Pipelines"). During this time, I also worked on drafting PG&E's gas standards to clarify and communicate federal and state pipeline regulations. I further worked with the CPUC Safety Branch in accompanying them to witness Transmission Pipeline upratings and hydro-tests to establish new MAOPs.
- 5. As part of my effort to verify and record the MAOP for PG&E's Transmission Pipelines based on the highest pressure these pipelines had experienced during the Five-Year Period, I prepared a spreadsheet for each Transmission Pipeline in operation at that time. As an example, attached hereto as Exhibit A is a true and correct copy of the spreadsheet I prepared for Line 101. I have also reviewed the remaining Transmission Pipeline spreadsheets, which are being provided to the Consumer Protection and Safety Division in support of PG&E's Report on Records and Maximum Allowable Operating Pressure Validation, to be filed on March 15, 2011, and have confirmed that they are true and accurate copies of the spreadsheets I prepared in the 1973-1975 time period.
- 6. On each spreadsheet, I identified the old MAOP, as well as the old Maximum Operating Pressure ("MOP") and Design Pressure ("DP") of each pipeline segment for these pipelines. In almost all cases, the old MAOP ratings were based on pressure testing conducted during construction or later testing, or upratings that may have

occurred prior to July 1, 1965. The old MOP rating for each segment was based on the lowest MAOP of another portion of pipe, valve or fitting to which that segment was connected. The old DPs were based on the physical design characteristics of these pipelines. This historical information had been previously compiled by the Gas System Design Department, and was available in the department's central files.

- 7. On each spreadsheet, I then listed the highest pressure each segment had experienced during the Five-Year Period, the date that pressure was recorded, and the location and division for that segment. For example, in Exhibit A, under the column headed "65-70 HP," I recorded the highest actual pressure that "Designations" 2 and 3 of Line 101 (mile points 9.80 to 44.56) had experienced during the Five-Year Period. Under the column headed "Date," I identified the date on which these pressures were reached. Under the columns headed "Location," and "Div," I identified the location and Division for each segment. To obtain this information, I reviewed data previously compiled by the Gas System Design Department. I also obtained additional data from field personnel (including Division Gas Engineers, Superintendents, and Terminal Operators) located in each of the thirteen divisions that the PG&E service territory was divided into at that time, as well as Pipeline Operations. These individuals provided this pressure information in response to a request that was sent from the Manager of Gas System Design, Charles Tateosian, to the Division Gas Superintendents, to whom the Division Gas Engineers reported, and the Manager of Pipeline Operations.
- 8. The details documenting the highest pressure during the Five-Year Period were sent by field personnel via a letter documenting the location and date of the highest operating pressure reached during that time period, and in some cases attaching a copy of the pressure chart showing that pressure. Based on this information, I then established the updated MOP and MAOP for each pipeline segment and recorded that

pressure on the spreadsheet I had prepared. In some cases, the MOP and MAOP remained the same; in other cases, the MOP and MAOP were adjusted to reflect the highest operating pressure recorded during the Five-Year Period. For example, in Exhibit A, the MOP and MAOP for Designation 1 of Line 101 (mile points 0 to 9.80) remained the same; however, the MOP and MAOP for Designation 2 of Line 101 (mile points 9.80 to 33.68) were adjusted from 250 psig to 180 psig. It was the Codes and Standards Section's practice that in the few instances where a Division Gas Engineer or Operator stated that they had witnessed the pipeline operating at a certain pressure during the Five-Year Period, but there were no pressure charts available to verify that pressure, a signed statement from that Division Gas Engineer or Operator was sent to substantiate this recorded pressure. To the best of my recollection, PG&E accepted a signed statement for only a few pipeline segments. In addition, if a pipeline segment had subsequently been tested or uprated, that information was included in the remarks section of the spreadsheet as the validation for the updated MAOP.

- Based on this effort, each spreadsheet listed the updated MOP and MAOP for each pipeline segment based on the highest pressure the pipeline segment had experienced during the Five-Year Period or pursuant to a valid pressure test or uprating documented after July 1, 1965.
- Just prior to my departure from the Codes and Standards Section, I also assisted in compiling this data into PG&E's Standard Practice 463-8, as Appendix A, "Lines in Transmission Capitol Operating at or over 20% SMYS," and Appendix B,
   "Distribution Mains Operating at or Over 20% SMYS," both effective May 1, 1975. PG&E's Standard Practice 463-8 provided policies and procedures for identifying, reviewing and revising the MAOPs and related pressure limits of Transmission Pipelines. Appendices A and B were regularly updated and periodically published

both prior to and following my holding the Gas Engineer position. The May 1975 version I assisted in preparing contained the most up-to-date data on the MOP, MAOP and DP for all numbered transmission pipelines and Distribution Feeder Mains operating at or above 20% SMYS in service at that time. Attached hereto as Exhibit B is a true and correct copy of Standard Practice 463-8, including Appendices A and B thereto, effective May 1, 1975.

- 11. I can affirm that PG&E properly verified and recorded the MAOP for all pipelines listed in the Transmission Pipeline spreadsheets I prepared by reviewing records and operating history, and that this effort met the code requirements for establishing MAOPs pursuant to CPUC GO 112-C.
- 12. After I transferred from the Gas System Design Department in March 1975, James R. Grinstead, a Gas Engineer in the Codes and Standards Section of the Gas System Design Department, assumed a leading role on overseeing the effort of maintaining these MAOP records.

I declare under penalty of perjury under the laws of the State of California and the United States of America that the foregoing is true and correct.

Executed this 15<sup>th</sup> day of March 2011, at San Francisco, California.

/s/ STEVEN H. PHILLIPS

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# FOR INTRA - COMPANY USES

DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS FILE NO 463 RE LETTER OP SUBJECT Standard Practice No. 463-8 MAOP of Pipelipes and Mains

MAOP of Pipelines and Mains Operating At or Above 20% of SMYS

#### April 15, 1975

DIVISION MANAGERS GAS OPERATIONS MANAGERS MANAGER, GAS CONSTRUCTION MANAGER, PIPE LINE OPERATIONS DIVISION GAS SUPERINTENDENTS DISTRICT MANAGERS DISTRICT GAS SUPERINTENDENTS DIVISION ADMINISTRATIVE ANALYST OR EQUAL DIRECTOR, PROCEDURES AND ORGANIZATION

The attached copy of Standard Practice No. 463-8, -including the Supplement-Procedural Details and Appendices A, B, and C, dated May 1, 1975, replaces Standard Practice No. 463-8 and Supplement-Procedural Details dated June 1, 1973, and Appendices A, B, and C dated March 1, 1975.

Additional copies of this standard practice may be obtained from Gas Operations by calling Extension 1604.

SIBLEY

JRGrinstead:sm

Attachment

Exh. B (Phillips)

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#### PACIFIC GAS AND ELECTRIC COMPANY STANDARD PRACTICE

STANDA	RD. PRACTICE		STANDARD PRACTICE NO. 4	00-0
EXECUTIVE	OFFICE OR DIVISION_	GAS OPERATIONS	PAGE NO EFFECTIVE_5/	/1/75
ISSUING DE	PARTMENT	GAS SYSTEM DESIGN	REPLACING 16	/1/73
SUBJECT:	MAXIMUM OPERAT OPERATING AT (	TING PRESSURES OF PIPELINES OR ABOVE 20% OF S.M.Y.S.	3 AND MAINS	· .
PURPOS	SE AND POLICY			
<u> </u>	<u></u>			
*1.	To establish a Design Pressur	uniform procedure for ide e (DP), Maximum Allowable	ntifying, reviewing and revising Operating Pressures (MAOP), and	
	Maximum Operat	ing Pressure (MOP) (PG&E)	for all pipelines, mains and hold	ers

operating at or above 20% of specified minimum yield strength (SMYS) of the

#### RECISIONS

2. All previous instructions, oral or written, that may be contrary to this Standard Practice.

pipe material (See Appendixes A, B and C).

#### RESPONSIBILITY

- 3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.
- 4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

#### REFERENCES

\*5. Current edition of California Public Utilities G.O. 112 S.P. 412-1, "External Corrosion Control of Buried Gas Facilities" S.P. 460-1, "Location Class Changes: Pipelines and Mains" S.P. 460.2-2, "Physical Inspection: Pipelines, Mains and Services" S.P. 460-21-4, "Periodic Leakage Surveys of Gas Transmission and Distribution Facilities" S.P. 463.7, "Pipeline History File, Establishing and Maintaining"

#### DEFINITIONS

\*6. <u>Design Pressure (DP)</u> is the maximum pressure permitted by the design sections of the current edition of G.O. 112, applicable to the materials and locations involved. In some cases the DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of G.O. 112 for Type 3 construction for line size listed (See double asterisk entries in Appendix A).

Future Design Pressure is the Design Pressure (DP) to be used for future additions to existing facilities, effective March 1, 1975.

TANDARD PRAC	ectric Company TICE	STANDARD PRACTICE NO. 463-8
XECUTIVE OFFICE OR	DIVISION GAS OPERATIONS	PAGE NO. 2 EFFECTIVE 5/1/75
STUNG DEPARTMENT	GAS SYSTEM DESIGN	REPLACING PAGE NO. 2 EFFECTIVE 6/1/73
UBJECT: MAXIM OPERA'	UM OPERATING PRESSURES OF PIPELINI TING AT OR ABOVE 20% OF S.M.Y.S.	S AND MAINS
DEFINITIONS		
<u>Maximu</u> a pipe the ai	IM Allowable Operating Pressure (A Aline or section of a pipeline may oplicable provisions of the curren	(AOP) is the maximum pressure at which be operated in accordance with all. It edition of G.O. 112.
Maximu gas sy Desigr	um Operating Pressure (MOP) (PG&E) ystem may be operated as specified a Department.	is the maximum pressure at which a by the Manager of the Gas System
<u>Specif</u> ṗsi pr manufa G.O. 1	ied Minimum Yield Strength (SMYS) escribed by the specification und cturer or as specified in Section 12.	is the minimum yield strength in er which pipe is purchased from the 192.107 of the current edition of
APPLICATION *7. Proced Practi Supple Append	ural details and supplemental dat ce. ment - Procedural Details ix A - Lines in Transmission Capi	a appear in addenda to this Standard tal Operating at or over 20% of SMYS
Append Append	ix B - Distribution Mains Operation ix C - Pipe Type Underground Hold	ers Operating at or above 20% of SMYS
8. Pressu docume above Operat	re Recording Charts and Operating nt'the MAOP and/or MOP (PG&E) of 20% of SMYS shall be kept current ions Department assigned with the ion of facility.	Sheets (record of hourly data) which pipelines and mains operating at or by the Division and/or Pipe Line responsibility of maintenance and
SUPPLEMENT		
9. The Sum MAOP as	pplement establishes the procedur nd DP for each facility.	e for designating the MOP (PG&E),
APPROVED BY:	E. F. Sibley Vice President - Gas Operations	
DISTRIBUTION:	Division Managers Division Gas Superintendents	Division Admin. Analyst or Equal Director, Procedures Analysis

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Exh. B (Phillips)

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Supplement S.P. 463-3 Page 1 Effective 5/1/75

### PROCEDURAL DETAILS

- \*10. Piping systems listed are not to be operated in excess of the MOP (PG&E). This limitation has been determined by the lowest of the following:
  - a) The test pressure or the rated working pressure of the pipe, valves, and fittings in the line.
  - b) The MAOP of the line as established in accordance with the provisions of the current edition of G.O. 112.
  - c) The MAOP of another pipeline system connected to the first system where there is no pressure control complete with over pressure protection between the two systems.
  - d) Operating conditions that limit pressure.
- \*11. The MOP (PG&E) may equal, but shall never exceed the MAOP or the DP. In some cases where the MAOP is less than DP, it is anticipated that the MOAP may be increased at some future time, in accordance with Subpart K (Uprating) of the current edition of G.O. 112. For this reason, all new additions to an existing system shall have a design pressure at least equal to the design pressure listed in Appendixes A, B and C. Some sections of an existing system may not qualify for the established design pressure and would require reconstruction, testing, or replacement prior to increasing the MAOP. See paragraph 6.
- , 12. New or replacement sections of line should be tested and qualified for the ultimate MAOP of the system, even though the MOP (PG&E) of the system is limited by the MAOP of other facilities connected to it.
- \*13. Any changes contemplated in the MOP (PG&E) or the MAOP of a line operating at or over 20% of SMYS shall be submitted by the Division Gas Superintendent or the Manager of Pipe Line Operations, in letter form, to the Manager of Gas System Design, for review and approval. A copy should be sent to the Manager of Gas System Planning.
- \*14. The MOP (PG&E), MAOP and DP of all newly installed pipelines and mains operating at or above 20% of SMYS, along with those in Appendixes A, B and C shall be confirmed annually by letter on or before February 1, by the Division Gas Superintendents and the Manager of Pipe Line Operations to the Manager of Gas System Design Department, for each facility within the scope of this Standard Practice.
- \*15. The Manager of Gas System Design Department will publish and distribute updated lists of pipeline pressures (Appendixes A, B and C) as required.

Attachment: Appendix A - "Lines in Transmission Capital Operating at or over 20% of SMYS" Appendix B - "Distribution Mains Operating at or above 20% of SMYS" Appendix C - "Pipe Type Underground Holders Operating at or above 20% of SMYS"

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\* Paragraph Revised \*\* Paragraph Added

### Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 1/15

# LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

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Line	1	Diameter	MOP		Design	Desig
NO.	Location	(Inches)	<u>ps ig</u>	MAOP	Press.	Press
21	Crockett Station (MP 0.00) to	. *				
	MP 0.54	24" & 26"	400	405	650	675
. 21	MP 0,54 to Herrmann Station (MP 1,52)	24"	400	675	675	675
21	Herrmann Station to Reis Avenue					0,0
	(MP 2.71)	16"	250	258	575**	575*1
21	Reis Avenue to Napa "Y" (MP 12.05)	12".	250	375	585	585
21	Napa "Y" to MP 35.05	12" & 26"	450	450	675	675
21	MP 35.05 to MP 51.41	12"	450	500	720	675
21	MP 51.41 to Santa Rosa Compressor	•		•		
	Station (MP 53.12)	12"	450	500	720	675
21	MP 53.12 to MP 110.4	12"	600	890	890	890
21	MP 110.4 to MP 111.2	12".	600	720	890	890
21	MP 111,2 to MP 111,9	12"	600	890	890	890
21	MP 111.9 to MP 112.1	12"	600	720	890	890
21	MP 112.1 to MP 113.9	12 <sup>n</sup>	600	890	890	890
21	MP 113.9 to Ukiah (MP 114.9)	12"	. 600	720	890	890
21	MP 114.9 to Willits (MP 136.8)	. 8"	600	832	832	890
. 21	Napa "Y" (MP 0.00) to MP 18.64	16"	450	500	720	675
21	MP 18,64 to Denman Flat Tap			•	•	-·
	(MP 24.6)	16"	450	500	720	675
21	McDowell Road Tap (MP 34.84) to					
	Petaluma Meter Station (MP 35.86)	12"	450	500	593	675
21	Adobe (MP 0.00) to San Rafael HPU					
	Holder Station	16" & 20"	450	500	600	675
21	Adobe (MP 0.00) to San Rafael HPU					
	(MP 21.11)	12"	450	500	675	675
*50	5th & Walnut Streets, Marysville					
	(MP 0.00) to Yuba City HPU					-
	(MP 2.87)	8 <sup>,</sup>	400	400	720**	720**
*50	Yuba City HPU to Biggs Regulator					
	Station (MP 21.62)	8 <sup>,</sup>	250	250	720**	720**
*50	Biggs Regulator Station to Richvale					
	"Y" (MP 26.94)	6" & 8"	250	250	720**	· 720**
*50	Richvale "Y" to Stirling Junction	•				
	(MP 44.87)	6" & 8"	400	400	720**	<b>72</b> 0**
50	MP 0.00 to Paradise (MP 7.81)	. 8 <sup>11</sup>	400	720	720	720
56	Pleasant Creek Field Storage System	- <u>4</u> "	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8"	1300	1440	1440	1440 <sup>·</sup>

\*\*See Paragraph 6

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	• • •	. Nominal				
Trans	•	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
No.	Location :	(Inches)	psia	MAOP	Press.	Press
r,,	······································		<u> </u>			<u></u>
	McDonald Island Field Storage				•	
	System	$4^{"} - 12^{"}$	2160	2160	2160	2160
57	McDonald Island Compressor Station			-200	NT00	2,100
	(MP 0.00) to PLS (MP 7.47)	14" 16" 18"	1025	1025	1025	1025
. 57	PLS (MP 7.47) to Brentwood Terminal		2040	1040	1020	1025
••	(MP 16.64)	18"	867	867	867	967
57B	Brentwood Terminal to McDonald		007	.007	007	007
··· ·	Island	22"	2160	2160	2160	2160
1 <u>00</u>	MP 134.5 to Milpitas Terminal			~100	". 5700	2100
	(MP 150.13)	2.0"	400	400	550	660
101	Milpitas Terminal (MP 0.00) to	20	400	400 .	552	552
-	Rengstorff Avenue Station (MP 9.80)	. 36"	400	400	400	400
*101	Rengstorff Avenue Station Via		-100	400	400	400
۰,	Bayshore to San Francisco Border					
	Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via		700	100	415	400
	Bayshore Boulevard to Potrero Gas				•	
	Plant (MP. 44,56)	20"	109	150	275	275
*103	Hollister Meter Station (MP 0.00) to		702	100	215	275
	California Street Regulator Station	•				
	(MP 23,55)	. 12"	350	350	670**	500
103	California Street Regulator Station				070.	
· · · ·	to Harkins Road Meter and Mixer					
	Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San			- 10	070	500
	Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*105	San Lorenzo Regulator Station to San					500
	Pablo Station (MP 52.01)	20"	150	198	275	275
*105	Oakland Holder Station (MP 0.00) to					270
	Berkeley City Limits (Parallel)					
	(MP 2.03)	24"	150	198	275	275
- 105	Baine Avenue Crossover (MP 0.00) to				- • •	273
	Line 153 (MP 0.18)	20"	-250	· 250·	590	500
*105	·West Winton Avenue Crossover	•				
	(MP 0.00) to Line 153 (MP 0.185)	22" & 24"	250	250	500	500
105B	. Crockett Station (MP 0.00) to San					
	Pablo Station (MP 11.85)	24"	400	400	400	400
1055	Milpitas Terminal (MP 0.00) to			-		
	Irvington Station (MP 6.88)	.20"	465	480	500	720
107	Tracy Station (MP 0.00) to Livermore	•	•			
: * :	Junction (MP 13-11)	22 <sup>n</sup>	500 ·	500 .	500	720

\*\*See Paragraph 6

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Exh. B (Phillips)

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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
107	Livermore Junction to Tryington					
	Station (MP 31.22)	2211	177	400	500	700
1075	Irvington Station to Milpitas		-11	400	500	720
	Terminal (MP 38.06)	22"	477	500	500.	720
. 108	Stanpac 2 (MP 0.00) to Vernalis			500	500	720
	Field Mixing Station (MP 4.59)	16"	500	500	720	800
108	Vernalis Field Mixing Station to			· · · ·	120	0.20
	McMullin Ranch Mixer Station					
	(MP 8.79)	16"	408	408	720**	720**
108	McMullin Ranch Mixer Station to				•	740
	MP 16.7	16"	408	408	720**	720**
108	MP 16.7 to Las Vinas Station					
100	(MP 43.5)	16"	412	412*	** 720**	720**
108	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant					
*109	(MP /3.10) E Hagleter o D Churche Doublet	16"	412	412	500	720
.109	Station (ND 27 10) to Streets Regulator					
	Cas Dlant (MP 1 71)	50.0		•		
109	Milpitas Terminal (MD $0.00$ ) to	12.,	185	185	275	275
	Sullivan Avenue Regulator					
	Station (MP 43 47)	228 4 208	255			
*109	Sullivan Avenue Regulator to	22" & 30"	375	375	400	400
	Potrero Gas Plant (MP 52,70)	2611	150	150	0.95	
111	Helm Junction (MP 0.00) to Fresho	20	120	120	275	275
	Junction (MP 21.65)	12"	650	650	800	===
111	Fresno Junction to Division Gas	** ==	000	050	800	720
	Load Center (MP 28.05)	8"	400	400	720	720
111	Raisin City Field Collection System	4"	800	800	800	720 900
111	San Joaquin Field Collection System	3" & 4"	800	800	960	960
112	Vernalis Field Collection System	3" - 8"	594	594	800	800
114	West Rio Vista Field (MP 0.00) to					
	Antioch Terminal (MP 9.01)	12" & 16"	510	510	800	800
114	Antioch Terminal to Brentwood				· · · ·	
174	Terminal (MP 16,59)	22"	595	595	595	720
114	Brentwood Terminal to Dalton Avenue					
114	PLS (MP 28,97)	22"	595	595	595	720
ΥT4	Datton Avenue PLS to Livermore		•			
*116	Danie Motor Chatier (MD 0 00) to	22"	495	495	595	720
110	Swingle Junction (MP 0.00) to	0.1		•		
*116	Swingle Junction to Sagramonto Co-	8"	500	500	500	800
	Plant: (MP 12.89)	0.11	F00	-		
		0	500	500	. 500	720
**See Par	agraph 6					

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\*\*\* MAOP reduced from 426 psig to 412 psig to match 412 psig MOP.

(See Over)

Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 4/15

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design	Future Design Press.
*118	Division Gas Foad Center (MP 0.00)					
•	to Fresno Junction (MP.6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP.0.00)					
`	to Fresno HPU Station (MP 0:66)	. 12"	690	690	720	720
*118	Fresno Junction to MP 12.57	T5.	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8",	400	400	720	720
118	Herndon (MP 0.00) to Athlone	201	400	100		· ·,
	(MP 38,39)	T5.	400	400	720	720
118	'Livingston to Collier Road (MP 74.89)	6"	400	720	720	/20
118	Collier Road to Bradbury Road	с н	400	400	400	400
	Regulator Station (MP 83,74)	6.	400	400	400	400
118	Bradbury Road Regulator Station to	61	500	800	990	800
110	MP 64:07	Ũ	000	0.50	090	090
173	Davis Meter Station (MP 0.00) to	101	780	792	800	800
110	Swingle Junction (MF 3.00)	124	500	720	800	720
110 ·	$\frac{1}{10} \frac{1}{10} \frac$	12*	500	520	800	720
110	$MD \cdot 11 14 * 0 MD 11 35$	10"	500	520	800	720
1.19	MP 11.35 to N. Sacramento HPU			0-0		. – –
	(MP 16.46)	12"	500	520	800	720
119	N. Sacramento HPU (MP 0.00) to					
	Antelope Meter Station (MP 10.17)	12"	500	500	500	600 (
119	N. Sacramento HPU (MP 0.00) to				•	:
	Antelope Meter Station (MP 8.41)	6" <u>&amp;</u> 16"	500	500	500	600
119	N. Sacramento HPU (MP 0.00) to	•				•
	MP.2,80 .	24"	180	180	545	545
119	Elm and Traction Avenue Regulator				•	•
	(MP 4.6 to MP 5.5)	12"	. 500	500	500	600
119	Sonoma Avenue Regulator and Del Paso				•	
3 8	Boulevard (MP 0.00) to Roseville				•	
	Regulator Station (MP 5.25)	6"	180	500	500	500
120	Sutter Creek Field Collection System	4" & 6"	492	492	720	720
120	Sutter Buttes Field Collection System	4" & 6"	485	485	720	720
121	Marysville Buttes Meter Station		•			·
• .	(MP 0.00) to Yuba City HPU	~ 11	105	105		800
	(MP 11.54)	6."	485	485	720	720
153	Anterope Meter Station (MP 0.00) to	104	FOO	r00		COAL
104	Lincoln Junction (MP 13.57)	14"	500	500	670**	670**
124	Lincoln Junction (MP 0.00) to 5th &	0"	400	400	<b>7</b> 0¢	coc
10.4	Wainut, Marysville (MP 23.40)	o	400	400	140.	600
124	ETHCOTH JUNCTION (MP 0.00) TO XUDA	161	600	600	600	600 -
	CITY HPU (MP 20.03)	TO	000	600	000	000 .

\*\*See Paragraph 6

Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 5/15

Шкомо.		Nominal	PG&R			Future
TLANS.		Diameter	MOP		Design	Design
DTHE	Location	(Inches)	nsia	MAOP	Press.	Press.
			<u> </u>			
124	Beale Air Force Base Tap (MP 0.00)					• í
~	(T 13.31) to MP 3.76	6"	400	400	720	600
125	Thompkins Hill Field Collection			•		
	System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station					
	(MP 0.00) to Union Street Regulator					
	(MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station					
	(MP 0.00) to Union Street Regulator					
	(MP 10.89)	6"	<b>3</b> 50	442	720	720
126	Elk River Road Regulator (MP 0.00)	•				
	to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10"	167	167	720	720
126	Union Street Regulator to Line 137	•				
	(MP 12.61)	6 <b>"</b>	167	167	720	720
130A	HP Rio Vista Sacramento River					
	Crossing (MP 0.00 to MP 0.50)	10"	800	800	800	800
130B <sub>.</sub>	LP Rio Vista Sacramento River					
	Crossing (MP 0.00 to MP 0.50)	10"	. 420	510	800	800
131	E. Rio Vista Field (MP 0.00 to		60F	COF	<b>.</b>	
	MP (0.71) = -11 (m - 0.00) + -	12"	685	685	800	800
. 131	E. Rio Vista Field (MP 0.00) to	101 - 101		000	000	000
101	Antioch Terminal (MP 9.19)	10" & 12"	800	420	800	800
131	Antioch Terminal to MP 10.47	24	400	430	000	720
121	MP 10,47 to Brentwood Telminar	2411	120	<b>105</b>	600	720
121	(MF 10.07) Brontwood Horminal to Truington	24	400	495	000	120
TOT	Station (MD 50 57)	240	500	525	600	650
131	Tryington Station to Milnitas		500	52.5	000	050
101	Terminal (MP 57 45)	30"	595	595	650	650
132	Milnitas Terminal (MP 0.00) to		,000	000	000	0,00
	Martin Station (MP 46.59)	24" 30" 36"	400	400	400	400
132	Martin Station to Potrero Plant					
	(MP 51.50)	24"	145	145	275	275
132	Sierra Vista Avenue (MP 10.32) to	-				-
	Rengstorff Avenue Station (MP 0.00					•
	to MP 1.47)	16" & 24"	400	400	400	400
132	Martin Station to Geneva Avenue					
	(MP 39.86)	20"	109	150	275	275
133	Gill Ranch Field Collection System	4" 6" 8"	400	500	720	720
134	Herndon Junction (MP 0.00) to	•				
	MP 21.57	6" & 8"	400	500	720	720
134	MP 21.57 to Arbios Meter Station					
	(MP 27.04)	6"	500	500	720	720

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		Nominal				
Trans.	the second s	Pipe	PGSE			Futuro
line	and the second	Diameter	MOP		Design	Destan
NO	Location	(Inches)	ngia	MÃOD	Drogg	Depidu
		[LINOIRON]	5013	MACE	FICSS.	<u>11699*</u>
134	Arbios Meter Station to MP 30.50	6" & 8"	500	500	720	720
134	Arbios Meter Station to Firebaugh	U Q U			720	720
	Regulator Station (MP 34 13)	31 6 11	500	500	770	700
136	Ord Bend Meter Station (MP 0 00) to	5 8 4	500	500	120	720
100	MD 3 21	61	470	ECE	720	700
136	MD 3 21 to Ctiviling Tunction (MD	Ū ·	413	202	720	120
200	12 97)	<b>C R</b> .	ECO	550	700	<b>PO</b> o
*127	TA,077 Whimle and Albee Streets Europe	. 0	550	550	720	/20
194	(MD) 0 00) to MD 11 02	44	167	1.69	500	-
127	(Mr 0.00) LO Mr 11.03	4"& 0"	107	107	720	720
137	(UD 3 FO) to Avente (UD 7 27)	• •				
120	(MP 3.58) to Arcata (MP 7.57)	. 8"	350	350	720	720
128	Heim Tap Station (MP 0.00) to Heim	104				
120	Junction (MP 14,94)	10.	500	500	650	650
138	Heim Tap Station (MP 0.00) to Heim					
	Junction (MP 14.71)	20" ·	700	700	800	890
138	Helm Junction to Elkhorn Station			•		
	(MP 20,50)	18" ·	7,00	865	865	890
138	Elkhorn Station to Burrel Meter					
	Station (MP 22.04)	18"	650	650	865	720
138	Burrel Meter Station to Adams & Elm				•	
	Meter and Regulator Station (MP 38.5	9) 16"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry			•	•	
•	& Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas			•		
•	Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator					
•••	Station (MP 50,02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (T 46.64)	10" .	650	720	720	720
141E	Thornton Meter Station to E. Thornton					
	Field Collection System	4" & 6"	538	538	800	800
141W	Thornton Meter Station to W. Thornton	•				
	Field Collection System	3" <b>-</b> 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove					
	Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield					
	Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
142S	Gosford Road Meter Station (MP 0.00)					
I	to Brundage Lane Regulator					
	(MP 9.00)	6" & 10"	600 <sup>°</sup>	600	720	720
*142	MP 9.00 to Bakersfield Meter		•		•	
•	Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4" ·	796	800	800	800
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\*\*See Paragraph 6

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### Appendix A S.P. No. 463-8 Effective 5/1/75 Page 7/15

		Nominal				t · · ·
Trans.		Pipe	PG&E			Future
Line	· ·	Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
1.4.4	Millar Mater Station (MP $0.00$ ) to	·				
744	Millar Field (MD 3 50)	101 6 101	. 706	700	000	
345	Miliar Fleid (MP 5,50) Maine Ducinic Rield Coll Custom		796	/96	800	800
140	Maine Prairie Field Coll. System	5" 4" 6"	796	/96	800	800
140	(MP 0.00) to Maine Prairie	• . •	-			
	Field (MP 6.00)	ģu	796	796	800	800
147	Whipple Road Crossover (MP 0.00) to	. •	7.20	, 50		000
<b>X-1</b>	San Carlos Regulator Station	:				
	(MP 3.39)	20" & 24"	400	400	400	400
148	McMullin Ranch Mixer Station				<u> </u>	
	(MP 0.00) to Ceres Regulator	۰.				
	Station (MP 18.24)	811	408	408	720	720
149	Winters Field Collection System	4" & 6 <sup>ii</sup>	- 750	750	900	900
150	Winters Meter Station to Davis		100	. , 50	· .	000
	Meter Station (MP 18.09)	611	750	.750	· 900	900
151	Aften Oderizer Station (MP $0.42$ ) to	Ŭ	750	750		800
	Afton Regulator Station (MP 14 05)	611	250	250	720	720
152	Afton Field (MP 0.00) to Afton	· · · ·	230	230	120	120
202	Odorizer Station (MP 0 42)	61	250.	250		720
153	Tryington Station (MP $0.00$ ) to	Ŭ	2.30	250	720	720
200	Marina Bouleward Station (MD 18 00)		420	420	50044	50044
*153	Marina Boulevard Station to 2nd and	50	420	420	500**	500**
	Market Streets (MD 27 89)	244	246	540	<sup>7</sup> 075 <sup>1</sup>	075
153	Tap to 50th Avenue Holdow	· · · · ·	240	240	215	275
100	Station	161 0 201	246	246	<b>.</b>	0.75
153	Tan to Oakland Wolder Station	20 8 20	240	240	275 - 075	275
153	Aluarado Crossovor to Lino 105	20"	240	240	275	275
*123	Fairward Muchue Crossover to Line	TO	250	250	500**	500**
	105	1008 (m. 208	150	100	<b></b>	
3 6 6	Durban Riald Callestian Custom	20" & 30"	150	198	542	500
150	Durham Field Correction System	. 4"	680	680	800	800
120	Durnam Freid (MP 0.00) to Durnam	<i>c</i>				
150	Dumpicon Wills Diald (MP 5.72)	6"	. 680	680	· 800	800
100	Dunnigan Hills Field (MP 4,90) to		•			
	Junigan Hills Meter & Regulator	<b>C</b> 11				
4120	(MP 13,05) Mandiana Riald Gallandian Gartan	6"	500	564	800	800
*128	Woodland Field Collection System	3" & 4"	500 <sup>°</sup>	564	800	800
128	Pleasant Creek Compressor Station		•	•	•	
	(MP 0.00) to V 0.65	4"	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator					
	Station (MP 3,91)	4" .	975	975	1000	975
159	Pleasant Creek Regulator Station to	. ,				
	Winters Meter Station (MP 6.08)	4"	750	750	`800 <sup>°</sup>	800
159	Winters Field Collection System	4"	· 750	750	800	800
					-	

\*\*See Paragraph 6

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Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 8/15

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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future Design	ι
No.	Location	(Inches)	psig	MAOP	Press.	Press.	
*162	Tracy Station (MP $0.00$ ) to Banta						
100	Regulator Station (MP 7.73)	.6 <sup>11</sup> & 8 <sup>11</sup>	365	365	720	720	
162	Tracy Station to Byron Road	··· •• -			. – .		
2 <del>.</del>	(MP 5,59)	10"	. 365	720	720	720	•
164	Coalinga Field Collection System	10" & 8"	498	498	865	890	
1.67	E. Beehive Bend Odorizer Station						
	(MP 0.00) to Yuba City HPU						
	(MP 34.50)	12" & 16"	800	800	800	800	
167	Wild Goose Field Meter (MP 0.00) to						
	Wild Goose Mixer & Odorizer Station						
	(Parallel)	10"	800 -	800	800	800	
167	Wild Goose Mixer to Gridley						
	Junction (MP 6.54)	8"	800	800	800	800	
167	Wild Goose Collection System	3" & 4" .	800	800	800	800	
167	Princeton Field Collection System	•					
	(MP 4.12 to MP 7.60)	3 "	800	800	800	800	
167	Compton Landing Field Collection						
	System	4 <sup>11</sup> & 6 <sup>11</sup>	800	800	800	800	
167	Bounde Creek Field Collection System	4"	800	800	800	800	
168.	River Island Field Collection System						
	HP	4" 6" 8"	800	800	800	800	~
168	River Island Field Collection System	<u></u>					I_
		3" - 8"	698	698	800	800	
169 .	Beenive Bend, Willows, Llano Seco,	•					
	& Perkins Lake Field Collection	211 2011		000	000	000	
170	System N. Doching Dond Noton Station	3″ <b>−</b> 20″	800	800	800	800	
1/2	(MD 0 00) to Swingle Jungtion						
•	(MP 60.00) LO SWINGLE JUNCLION	18" 6 20"	800	800	800	800	
172	Swingle Junction to Sacramento Cas	TÒ & 20	000	500	800	800	
114	Plant (MP 79.15)	16"	500	520	720	720	
172	Crosstie Between Line 172 (MP 0.00)		000	520	140	720	
	& Line 167 (MP 0.60)	10"	800	800	800	800	
172	Crosstie Between Line 172 (MP 75.45)			•			
	& Line 119 (MP 9.68)	12"	500	520	720	720	
173	Line 123 (MP 0.00) (V 6.51) to					-	
•	Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720	
174	Arbuckle Field Collection System	2" - 10"	800	800	800	800	
176	Roberts Island Field Collection						
	System	2" - 8"	555	555	800	800	
176	Roberts Island Field (MP 0.00) to						
	Tracy Station (MP 18.85)	6" & 8"	555	555	800	800	
177	Sacramento Avenue Junction (MP 0.00)						
-	to Grapeway Regulator Station		<b>.</b>	<b>_</b> *			
	(MP 0.87)	10"	819	819	960	960	

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Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 9/15

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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future De <b>s</b> ign
No.	Location	(Inches)	psig	MAOP	Press.	Press.
177	Grapeway Regulator to Stirling	6 <sup>11</sup> c 30 <sup>11</sup>		169	600	600
177	Fell Regulator & Odorizer (MP 0.00) to Sacramento Avenue Junction	0 2 10	409			800
	(MP 4.75)	16"	819	819	960	960
177	Sacramento Avenue Junction to	3.0.11	010	010	060	060
177	Tap 27.60 (MP 0.00) to Tap 29.87 (MP 2.19) Parallel Section Near				, 096 900	960
	Corning N. Dome	6" & 8"	819	819	960	960
177	Corning N. Dome Station to Gerber					
177	Compressor Station (MP 37.84)	12"	819	819	960	960
т <i>і і</i>	Cummings Creek PLS (MP 163.04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill				•	
	Meter & Regulator Sta (MP 178,18)	12"	430	430	720	720
177.	Thompkins Hill Meter & Regulator					
	Station to Ryan Slough Regulator	3011	350	112	600	600
177	Crosstie Between Lines 177 (T 37.8)	14	220	472	000	000
1, , ,	and Line 400 (V 149.18)	12"	819	819	960	960
177	Tap (V 43.87) to Red Bluff and					
	Diamond National (MP 1.24)	6"	819	819	960	960
177	Rancho Capay Field Coll. System	<u>4</u> "	819	819	960	960
180	Kettleman Hills Field Coll. System	8" - 20"	421	421	500	500
181	Soap Lake Meter Station (MP 0.00)	<b>-</b>				
2.07	to V 1.56	10"	300	300	400	400
181	V 6.19 to Watsonville Meter Station	108 6 128	300	303	400	400
181	(MP 20,15) Anzar Road Meter and Regulator	10 & 12	500	505	400	400
101	(MP 0.00) to Watsonville Meter					
	Station (MP 11.19)	10" 16" 12"	300	303	400	400
*182	Serpa "Y" (MP 0.00) to Shell					
	Chemical Meter Station (MP 18.23)	$4^{"} - 12"$	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun					
	Junction Meter Station (MP 18.87)	12"	435	435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	rirebaugn Regulator Sta. (MP 0.00)	211	320	300	800	000
105	Hollistar Field Collection System	 	306	306	600	500
186	Dog Palos Meter Station (MP 0.00)	*	390	350		500
100	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

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Appendix A S.P. No. 463-8 Effective 5/1/75 Page 10/15

Trans		Nominal Pipe	PG&E			Future
Line	and the second	Diameter	MOP		Design	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
<u> </u>	·····		<u> </u>			
187	San Ardo Field Meter Station		•			
	(MP 0.00) to Jolon Road Regulator	•	,			
	Station (MP 22.58)	6"	313	313	870	870
187	Jolon Road Regulator Station to				•	
	Harkins Road Meter & Mixer Station	۰.				
;;	(MP 65.70) '	8"	313	313	720	720
189	Elk River Road Regulator Station	·	,			
	(MP 0.00) to Humboldt Bay P.P.	•				
۰.	(MP 1.72)	10"	350	442	720	720
190	Kettleman Compressor Station					
	(MP 0.00) to Coalinga Nose Storage			•		
	Field (MP 16.08)	12" & 16"	2160	2160	2160	2160
190	Coalinga Nose Storage Field to					
	Union Oil Company (MP 16.22)	16"	2160	2160	· 2160 <sup>.</sup>	2160
191	Antioch Terminal (MP 0.00) to Los					
	Medanos Junction (MP 5,81)	30" & 34"	315	600	600 <sup>°</sup> ·	600
191	MP 3.87 to MP 9.93 Via Pittsburg	-	•			
	Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road	168 000 040				
4101	Regulator Station	16" 20" 24"	315	338	600 '	600
*TAT	Reliez Station Road Regulator		0.00	000		
+101	Tunction Time 101 (MD 20 26) to	8 10 15	268	283	400	400
~ T 2 T	MD 32 76	100	200	070	400	
*101	MD 32 76 to Martinez Meter and	1.0	208	270	400	40 <u>0</u>
· • •	Regulator Station (MD 35 83)	101	260	260	.100	400
*191a	Junction Line 191 to Ardilla and	70	2.00	200	400	400
<u> </u>	Cámino Pablo & Orinda Regulator					
	Station	31 61 81	268	283	400	400
*191B	Junction Line 191 to Reliez Vallev		200	203	400	400
•	Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193	Malton Field Collection System	4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North			•		200
•	Collection System	· 6"	819	819 -	960	960
194	McMullin Ranch Mixer (MP 0.00) to	*				
.4	MP 2.83	8" & 10"	437	437	800	800
194	McMullin Field Dehydrator Station					
-	(MP 0.00) to California Ammonia					
	Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection			• •	•	
•	System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System					
	(HP)	2" <b>-</b> 16"	800	800	800 .	800

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Exh. B (Phillips) Appendix A S.F. No. 463-8 Effective 5/1/75 Page 11/15

		Nominal				
Trans.	· · · · · · · · · · · · · · · · · · ·	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
· NO.	Location	(Inches)	psig	MAOP	Press.	Press.
*195	Rio Vista Field Collection System					
	(LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to					
	Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21,41 to MP 31,23	<b>10" &amp; 12</b> "	320	500	720	720
197A	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8"	320	· 320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	<b>7</b> 20	720
197B	V 19.57 to V 31.24	8 <sup>11</sup>	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection					
	System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection					
	System (LP)	2" <b>- 1</b> 6"	510	510	800	800
200	Liberty Islands Field Collection		ι			
	System	4"	800	800	800	800
200	Lindsay Slough Field Collection					
	System	3" <del>-</del> 10"	800	868	960	960
201	Todhunters Lake Field Collection					
	System	2" - 12"	800	960	960	960
202	Grass Valley Tap to Regulator					
• -	Station near Robin Avenue, Grass					
	Valley (MP 23.72)	6" & 8"	400	720	720	600
203	Greens Lake Field Collection System	4 <sup>11</sup> .	500	800	800	800
204	Bender Gas Well Collection System	3" & 4"	500	890	890	890
206	Pleasant Creek Tap to Pleasant				•	
	Creek Compressor Station	12".	975	1440	1440	1440
207	Conway Ranch Field Collection System	4" 6" 8"	800	1000	1000	1000
209	Line 400 to Line 128 at Willows	4"	450	450	720	720
210	Rio Vista "Y" (MP 0.00) to Creed					
	Station (MP 1.40)	16"	650	650	800	800 <sup>°</sup>
210	Creed Station to Napa "Y" (MP 25.98)	16" & 18"	650	650	740	740
210	Creed Station to Cordelia Regulator					
	Station (MP 19.47)	32"	650	675	675	675
210	Cordelia Regulator to Napa "Y"					
	(MP 25.62)	10" & 12"	650	650	800	800
210	Rio Vista "Y" to Creed Station					
	(MP 1.36)	10"	650	650	800	800
210	Cordelia Regulator to Herrmann					
	Station	24"	650	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil					
,	Meter Station	18"	650	720	720	675

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		Nominal				
Trans.	,	Pipe	PG&E			Future
Line	· · ,	Diameter	MOP		Design	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
215	MP 0.00 to MP 20.05	<u>12"</u>	500	890	890	890
220	Rio Vista "Y" (MP 0.00) to Davis					
	Meter & Regulator Station	•				
	(MP 22.01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan					
	Meter & Regulator Station					
	(MP 34.11)	6" & 8"	500	500	500	800
300A	Colorado River (MP 0.00) to Topock		•			
:	Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A					
:	(MP 40.87)	. 34"	867	867	890	890
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	815	815
300A	PLS 2A to PLS 2AX (MP 130.37)	34"	688	688	688	688
300A	PLS 2AX to Hinkley Compressor	•				
÷ •	Station (MP 159,33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS			•		
	3A (MP 203.02)	34"	861	8 <b>61</b>	890	890
300A	PLS 3A to PLS 4A (MP 256,21)	34"	803	817	. 817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor	•			•	
• •	Station (MP 353.85)	34"	669	688	· 688	688
300A	Kettleman Compressor Station to					
•	PLS 6A (MP 436.74)	· 34" ·	840	840	890	890
300A	PLS 6A to Pacheco Pass PLS					
• •	(MP 461.07)	· 34"	715	. 715	715	715
300A	Pacheco Pass PLS to PLS 7A Silver	• •				
	Creek (MP 490.65)	34"	631	631	715	715
300A	PLS 7A to Milpitas Terminal Station					
•	(MP 502.34)	34"	558	558	676	676
300B	Colorado River (MP 0.00) to Topock	•				
	Compressor Station (MP 0.45)	34"	660	660	735	735
300B	Topock Compressor Station to PLS 1B		. •			
	(MP 40.49)	34"	867	867	894	894
300B	PLS 1B to PLS 2B (MP 103.51)	34"	815	821	821	821
300B	PLS 2B to PLS 2BX (MP 130.40)	34"	688	688	688	688
300B	PLS 2BX to Hinkley Compressor					
•	Station (MP 161.02)	34"	573	573	573	573
300B	Hinkley Compressor Station to PLS					
•	3B (MP 203.07)	34"	861	861 .	897	897
300B	PLS 3B to PLS 4B (MP 256.64)	34"	803	816	816	816
300B	PLS 4B to PLS 5B (MP 299.00)	34"	736	757	757	757
300B	PLS 5B to Kettleman Compressor	•				
	Station (MP 354.02)	34*	669	688	688	688

Appendix A S.P. No. 463-8 Effective 5/1/75 Page 13/15

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		Nominal				
Trans.		Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
	· · · · · · · · · · · · · · · · · · ·	•				····
300B	Kettleman Compressor Station to PLS					
,	6B (MP 436.85)	34"	840	840	890	89Ó
300B	PLS 6B to Pacheco Pass PLS (MP		•			
•	461.08)	34"	715	715	715	715
300B	Pacheco Pass PLS to PLS 7B Silver	·				
	Creek (MP 490.92)	34"	631	631	715	715
300B	PLS 7B to Milpitas Terminal Station					
	(MP 502,64)	34"	600	669	669	669
301G	Hollister Meter Station (MP 0.00)			'	٠	
	to Moss Landing Power Plant	•				
• •	(MP 24.68)	24" & 30"	500	500	500	500
301A	Hollister Meter Station (MP 0.00)	•			_, _,	
	to Moss Landing Power Plant		•	• •	• •	
	(MP 24.84)	20"	396	396	500	500
301B	Dolan Road Meter Station (MP 0.00)	•				
	to Hilltown Regulator Station		•			
	(MP 14.02)	12"	408	<b>40</b> 8	600	500
*301C	Hilltown Regulator Station to					200
	Harkins Road Meter and Mixer		•	• •		•
	Station (MP 17.20)	8" s 12"	313	313	500	500
*301F	Espinosa Road (MP 0.00) to Marina		- 7-			500
	Regulator Station (MP 7.94)	16"	408	412	400	412
*301E	Crosstie - Monterey #2 (MP 0.00) to				nç u	
	Main 301 (MP 1.02)	12"	408	408	500	500
301D	Anzar Tap Station to Anzar Road					000
	Meter & Regulator Station (MP 1.72)	10" <sup>`</sup>	500 '	500	500	500
301H	Anzar Tap Station to Anzar Road					000
	Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes. W. Butte, Butte	· ·				500
	Slough, Grimes, Sycamore, Kirk &					•
	Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	Buckeye Creek PLS (MP 0.00) to			-+++ ·		2000
,	Hershev Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood		2,0		2000	515
	Terminal (MP 7.86)	36"	720	720	720	720
303	Brentwood Terminal to Tryington		,20		740,	120
	Station (MP 42,83)	36"	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop		. ,	0,00	- 1	000
	Dehydrator & Odorizer Station					
	(MP 11, 29)	120	825	825	825	925
304	Lathrop Field Collection System	3" - 12"	825	825	825	02J 82K
306	Kettleman Compressor Station	16	02,5	020	020	
200	(MP 0.00) to Dry Creek PLS			•		
	(MP 43.3)	20"	840	840	840	8/0
	·	~ •	0-10	040	0-10	040

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Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 14/15

		Nominal					,
Trans,		Pipe	PG&E		•	Future	د
Line		Diameter	MOP		Design ·	Design	
NO.	Location	(Inches)	psig	MAOP	Press.	Press.	
306	Dry Creek PLS to Morro Bay Power	201	650	650	040		
	Plant (MP 70.02)	20"	650	650	840	840	
307	Spreckels Sugar Meter Station						
	(MP 0.00) to spreckets Sugar	011	500	500	015		
	Regulator (MP 16,36)	8	500	500	915	890	
307	Derrick Road Tap (MP 0.00) to	011	500	000	015	000	
	Arbios Regulator Station (MP 4.95) where $200$ (MD 0.00) (M 180 (40) to	,o.,	500	890	912	890	
311	Main 300 (MP 0.00) (V 180.84A) to						
	westend Frimary Regulator Station		700	700	060	000	
517	(MP 34,44)	10 & 12	700	700	. 960	890	
311	MD 29 40	 ווכד	700	010	060	000	
210	$Mr_{30,49}$	14	700	010	900	890	
312	Dalema Riald Mater Station						
	(Mp. 9.00)	011	736	740	020	83.0	
212	(MP 0.00) Tugarna Wallow Man Watar Station to	0	130	740	620	820	
272	Deverse valley Tap Meter Station to		572	572	720	710	
214	Minkley Company Meter (MP 54,4)	0 & 10	575	575	720	720	
314	HINKIEY COMPRESSOR STATION (MP 0.00)		063	061		000	
214	10  MP 24,13	10"	260	260	720.	890 720	
214	MP 24.19 to Mr 29.00	τv	200	200	120	720	
214	Pogulator Station (MD 43 18)	8" c 10"	260	260	720	720	f
21/	man to Diverside Coment	. 91	200	260	720	720	Ľ,
314	Tap to Airbage Road Mater Station	8" ·	260	260	720	720	
*316	Dutch Slough & River Break Field	Ŭ	200	200	120	,20	
010	Collection System	$2^{\mu} - 12^{\mu}$	800	800	800	800	
317	Chickahominy Field Collection	. 10	000	000	000		
017	System	3"	975	975	975	975	
318	Black Butte Field Collection System	3"	911	911	960	960	
372	Ridgecrest Tap to Ridgecrest Primary						
	Regulator	6 <sup>11</sup>	700	700	960	960	
400 .	California-Oregon Border (MP 0.00)						
	to Tionesta Compressor Station						
	(MP 24.60)	36"	911	911	911	911	
400	Tionesta Compressor Station to						
	Indian Springs PLS (MP 48.64)	36" .	911	911	911	911	
400	Indian Springs PLS to Burney					•	
	Compressor Station (MP 82.33)	36"	911	911	911	911	•
400	Burney Compressor Station to						
	MP 104.20	36"	911	911	911	911	
400	MP 104.20 to Shingletown PLS						•
	(MP 115,26)	· 36"	911	915	942	942	
400	Shingletown PLS to Gerber Compressor						
	Station (MP 149.18)	36"	911	911	911	911	

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Exh. B (Phillips) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 15/15

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
400	Gerber Compressor Station to Delevan Compressor Station			·		
	(MP 197.83)	26" & 36"	911	911	911	911
400	Delevan Compressor Station to					
	Buckeye Creek PLS (MP 233.87)	36"	1040	1.040	1040	1040
400	Buckeye Creek PLS to Antioch					
	Terminal (MP 298.87)	26" & 36"	975	975	975	975
402	Redding-Calaveras Tap (MP 0.00) to					
	PLS (MP 9.96)	12"	300	300	865	865
402	MP 9.96 to Calaveras Cement Tap					000
	(MP 38,10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed				• - •	720
	Station (MP 1.38)	16"	650	650	855	800
						000

\*Indicates that line or sections of line are under 20% SMYS, but are listed for the purpose of continuity.

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Exh. B (Phillips) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 1/3

# DISTRIBUTION MAINS OPERATING AT OR OVER 20% SMYS

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•					
	Nominal			• •	
	Pipe	PG&E			Future
•	Diameter	MOP		Desim	Decian
Togation	(Inches)	neia	MÃOD	Droce	Droce
	(THOMOD)	Para	PIROF	FIC55.	FIC35.
COAST VALLEYS DIVISION	• •			•	
Monterey #1 - Harkins Road Meter & Mixer					
Station to Fig-Frank Streets Regulator			•	:	
Station	8" c 12"	313	313	500	400
Monterey #2 - Fort Ord to Fig-Frank Streets	0 8 12	515	515	500	400
Deculator Station	108 108 168	212	212	400.	400
Montorov (M-19 65 to Carmal M-2 13) Aquatita	10 12 10	213	272.	400	400
Moncerey (V-10.05 LO Carmer V-2.15) AquajiLO		212		500	400
Koau Regulator Station	0.8 TO.	212	313	500	. 400
Harkins Road Meter and Mixer Station to	ou - iou		<b></b>	-	
MP 2.45	8" & 10"	313	313	500	500
MP 2.45 to MP 3.50	8"	313	313	500	500
MP 3.50 to California Street Regulator				•	
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel				•	
Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3#	313	313	720	<sup>:</sup> 870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
	• •				
COLGATE DIVISION			•	• •	
Yuba City HPU Holder to Market Street					•
Regulator Pit	6" & 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
-				• •	
DRUM DIVISION			•	• ••	
Diamond Oaks Feeder	6"	500	500	500	600
	-		000		
EAST BAY DIVISION					
Avon Power Station Feeder	8" c 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	31.5	338.	- 600	600
Ceneral Chemical Tan	¥11 T2	315	330	600	600
Decific States Steel Reeder	101	420	.430	600	600 . E00
Narm Carings Roodor	24 24 c 411	420	420	500 500	500
Naim Springs recuer	2 & 4" CII `	400	400	500	600
FOLL COSLA FREEder -	161 - 201	150	338	600	600
Soun Avenue Holder Feeder Oli Line 105	10" & 20"	150	198	275	275
Pittsburg Town Feeder	12"	315	338	600	600
Concord reeder to Alpha Beta Regulator	8"	312	600	600	600
Oteum Steam Plant Tap	8" 10" 12"	250	250	275	275
san kamon Feeder	16"	500	500	500	600
Standard Oil Feeder	22 <sup>#</sup>	400	400 ·	400	400

Exh. B (Phillips) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 2/3

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter		• • • •	(		
Station	′ 8 <sup>n</sup>	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator	104	450	500	675	695
Station	10" 10"	450	- 500 500	675	675
Kilburn Regulator Station to Yountville	6" & 10" 61	450	500	675	675
6" Sonoma Tap Line	0	450	500	675	675
SACRAMENTO DIVISION	• t				
Sacramento Gas Plant to North Sacramento HPU					
Holder	8" & 12"	260	260	400	400
Tremont Tap to Dixon Meter Station	6"	550	750	800	800
Tap to Union Carbide (MP $0.00 - MP 4.05$ )	8" & 10"	412	412	720	720
					•
SAN FRANCISCO DIVISION					
Peninsula Main	16" & 20"	109	109	275	275
Hunters Point Power Plant Feeder	20"	145	145	275	275
• •			4		
SAN JOAQUIN DIVISION				•	
Tranquility Feeder	3"	800	800	900	900
yosemite Avenue Feeder	. 6"	400	720	720	720
Line 300A to California-Portland Cement Company	3"	803	817	865	865
Snelling Highway Feeder	6"	400	400	400	720
Dixon Dryer Feeder	4"	500	· 500	· 720	720
Peach and Central Feeder	6"	650	720	720 .	720
Clovis Feeder Main	6" & 12"	650	650	720	720
Vinewood Avenue Feeder	4"	400	720	720	720
Winton Avenue Feeder	6".	400	720	720	720
Cressey Way Feeder	4" & 6"	400	400	720 ·	720
Valley Nitrogen Feeder	6"	650	650	800	720
SAN JOSE DIVISION					
Half Moon Bay Feeder Line	8" 10" 12"	400	577	577**	577**
Santa Cruz to Davenport	10" & 12"	300	303	557**	400
Milpitas Terminal to PLS #7, Kings Road,				•	*
20" Feeder	16" 20" 30"	200	200	275	526
Watsonville to River Street Regulator					
Station	8" & 10"	300 '	303	577**	400
Watsonville to Rob Roy Junction	10"	300	303	557**	400

\*\*See Paragraph 6

Exh. B (Phillips) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 3/3

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
SHASTA DIVISION					
Simpson Lee Paper Mill Feeder	6 <sup>11</sup>	300	. 300	720 .	720
U.S. Plywood Plant Feeder	<b>4</b> 11	300	720	720	720
Enterprise Town Feeder	4" & 6"	300	300	720	720
Calaveras Cement Company Feeder	8"	300	300	720	720
Red Bluff District Tap	2 <sup>1</sup> "	911	911	911	<b>91</b> 1
STOCKTON DIVISION					
Roth Road Feeder - Manteca	4"	408	720	720	720
Valley Tomato Trunk Line	8"	412	500	720	720
Eight Mile Road Trunk Line	4" & 8"	412	426	720	720
Ripon-Modesto Feeder (Parallel)	8" & 12"	408	408	720	720
Dale Road to North Avenue Feeder	12"	408	408	720	720
Riverbank Feeder	8" & 10"	408	720	720	720
Carpenter Road Feeder	12"	412	500	720	720
Modesto Feeder Via Pauline Boulevard	4" & 6"	408	408	720	720
Turner Road Feeder (Parallel)	4" & 8"	300	300	720	720
McArthur Road Feeder	4"	295	295	400	720
Louise Avenue Feeder	8"	408	408	720	720
C.Y.A. Feeder - Stockton	6"	412	426	720	720
Morgan Road Feeder - Modesto	12"	260	720	720	720
Swain Road Feeder	6" & 8"	125	400	400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

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Exh. B (Phillips)

Appendix C S.P. No. 463-8 Page 1/1 Effective 5/1/75

# PIPE TYPE HIGH PRESSURE UNDERGROUND HOLDERS OPERATING AT OR OVER 20% SMYS

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Location	Length (Feet)	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
COLGATE DIVISION -						
Yuba City	24,784	34"	525	525	. 550	550
NORTH BAY -						
San Rafael	37,392	30"	650	650	690	690
SACRAMENTO DIVISION -	•					
Sacramento	78 <b>,</b> 452	34"	445	445	550	550
SAN JOAQUIN DIVISION -						
Fresno	43,722	30"	690	690	690	690
SAN JOSE DIVISION -						
Santa Cruz	7,221	30"	660	660	660	660
	4,838	34"	660	660	660	660

Attachment B

## **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)

### **DECLARATION OF ROBERT C. BECKEN**

### I, ROBERT C. BECKEN, do declare:

- I am a California Registered Mechanical Engineer and a California Registered Control System Engineer. My registration numbers are M-14394 and CS-2670, respectively. I am a member of the American Society of Mechanical Engineers (ASME) Gas Pipeline Safety Research Committee, a member of the American Gas Association (AGA) Gas Piping Technology Committee, and a member of the ASME B31.8 Gas Transmission and Distribution Piping Systems Committee. I am currently Vice-President of Gas Engineering for Energy Experts International, based in Redwood City, California. PG&E has retained my services to work on various projects, including matters related to the September 2010 San Bruno incident. I have personal knowledge of the following facts and, if called as a witness, would testify thereto.
- 2. From March 28, 1966 to May 1, 2005, I was an employee of Pacific Gas and Electric Company ("PG&E"). From December 1, 1966 to 1990, I was chronologically a Gas Engineer, Senior Gas Engineer, and Supervising Gas Engineer in the Gas System Design Department. The Gas System Design Department was responsible for determining the Maximum Allowable Operating Pressure ("MAOP") of PG&E's gas

transmission and distribution pipelines. When I retired from PG&E in 2005, I was the Chief Technical Consultant in the System Integrity Section of the Gas System Maintenance and Technical Support Department of California Gas Transmission, a business unit of PG&E. From 1990 to my retirement from PG&E in 2005, I continued to be involved in MAOP decision-making for PG&E's gas transmission system.

- 3. In 1968-1969, in preparation for implementation of the Natural Gas Pipeline Safety Act of 1968, PG&E's Gas System Design Department commenced an effort to consolidate transmission pipeline system documentation and information. Part of this effort consisted of determining the MAOP of PG&E's transmission pipelines in accordance with applicable law. PG&E created "Pipeline Survey" sheets for each of its transmission pipelines during this time period and transferred detailed information on these sheets from existing records and other sources, including information on pipe specifications, test information, MAOP, geographic features and location class information. Previously this pipeline information had not been consolidated in this manner.
- 4. During that time period, PG&E's gas system was centrally operated by Gas Control in San Francisco, and locally operated by four Terminals (Antioch, Brentwood, Milpitas and Kettleman) and nine Division Gas Load Centers (Marysville, Eureka, Sacramento, Stockton, Fresno, San Rafael, San Francisco, Oakland and San Jose). For Lines 300A and 300B, full-time operators were on duty at the Topock Compressor Station, Hinkley Compressor Station and Kettleman Compressor Station. PG&E continuously monitored and recorded pressures in the gas system at these locations and logged the recorded pressures on at least an hourly basis. PG&E's policy at that time was to keep the pressure recordings and log sheets for at least five years.

- 5. In 1969-1970, I was involved in reviewing many of the above-referenced pressure recordings and log sheets to determine the highest operating pressure of each transmission line segment from July 1, 1965 through July 1, 1970 ("Five-Year Period"). At that time, the MAOPs of a majority of transmission pipelines evaluated were established by the highest operating pressure experienced within the Five-Year Period. For those pipelines constructed during the Five-Year Period, PG&E established the MAOP based on information from its pressure tests. PG&E's divisions retained this MAOP information for the pipelines in their areas.
- 6. On June 1, 1973, PG&E's Gas System Design Department issued Standard Practice 463-8, "Maximum Operating Pressures of Pipelines and Mains Operating at or Above 20% of S.M.Y.S." Part of the purpose of Standard Practice was to establish a uniform company procedure for identifying, reviewing and revising MAOPs of transmission pipelines. A true and correct copy of Standard Practice 463-8, effective May 1, 1975 and replacing the version of Standard Practice 463-8 issued on June 1, 1973, is attached hereto as Exhibit A.
- 7. In 1974, I was involved in reviewing the transmission pressure information again as part of an effort by PG&E to compile and centralize information on the basis of the MAOP established for each of its transmission pipelines operating at or above 20% specified minimum yield strength ("SMYS"). PG&E created a series of charts to record a summary of this MAOP information and saved the supporting documentation in binders for each of the thirteen divisions in existence at that time. A true and correct copy of a sample page from the MAOP charts that PG&E created in the 1974 time period is attached hereto as Exhibit B.

- 8. Based upon the MAOP information compiled in the effort described in paragraph 7 above, PG&E created appendices to Standard Practice 463-8 listing the MAOPs of all numbered transmission pipelines and DFMs operating at or above 20% of SMYS. See Appendices A and B to Standard Practice 463-8, effective May 1, 1975, attached hereto as Exhibit A. PG&E updated these MAOP appendices regularly.
- On April 9, 1979, PG&E issued a revised Standard Practice 463-8 which replaced the May 1, 1975 version. This version converted the MAOP appendices to Drawing No. 086868. Attached hereto as Exhibit C is a true and correct copy of Standard Practice 463-8 issued on April 9, 1979, which attached a copy of Drawing No. 086868 (Rev 0). PG&E updated Drawing No. 086868 regularly throughout the remainder of my career at PG&E.

I declare under penalty of perjury under the laws of the State of California and the United States of America that the foregoing is true and correct.

Executed this 14<sup>h</sup> day of March 2011, at Walnut Creek, California.

/s/ ROBERT C. BECKEN + 62-6218 (REV 9-70)

# PG∞E

### FOR INTRA - COMPANY USES

DIVISION OR DEPARTMENT FILE NO SUBJECT VICE PRESIDENT - GAS OPERATIONS 463 RE LETTER OP SUBJECT Standard Practice No. 463-8 MAOP of Pipelines and Mains Operating At or Above 20% of SMYS

### April 15, 1975

DIVISION MANAGERS GAS OPERATIONS MANAGERS MANAGER, GAS CONSTRUCTION MANAGER, PIPE LINE OPERATIONS DIVISION GAS SUPERINTENDENTS DISTRICT MANAGERS DISTRICT GAS SUPERINTENDENTS DIVISION ADMINISTRATIVE ANALYST OR EQUAL DIRECTOR, PROCEDURES AND ORGANIZATION

The attached copy of Standard Practice No. 463-8, -including the Supplement-Procedural Details and Appendices A, B, and C, dated May 1, 1975, replaces Standard Practice No. 463-8 and Supplement-Procedural Details dated June 1, 1973, and Appendices A, B, and C dated March 1, 1975.

Additional copies of this standard practice may be obtained from Gas Operations by calling Extension 1604.

SIBLEY

JRGrinstead:sm

Attachment

Exh. A (Becken)

62.7501	REV.	4.65

### PACIFIC GAS AND ELECTRIC COMPANY STANDARD PRACTICE

EXECUTIVE OFFICE OR DIVISION \_\_

ISSUING DEPARTMENT\_

	STANDARD PRACTICE NO. 463-8
GAS OPERATIONS	PAGE NO. 1 EFFECTIVE 5/1/75
GAS SYSTEM DESIGN	REPLACING 1 BAGE NO 1 6/1/73

SUBJECT: MAXIMUM OPERATING PRESSURES OF PIPELINES AND MAINS OPERATING AT OR ABOVE 20% OF S.M.Y.S.

#### PURPOSE AND POLICY

\*1. To establish a uniform procedure for identifying, reviewing and revising Design Pressure (DP), Maximum Allowable Operating Pressures (MAOP), and Maximum Operating Pressure (MOP) (PG&E) for all pipelines, mains and holders operating at or above 20% of specified minimum yield strength (SMYS) of the pipe material (See Appendixes A, B and C).

#### RECISIONS

2. All previous instructions, oral or written, that may be contrary to this Standard Practice.

### RESPONSIBILITY

- 3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.
- 4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

#### REFERENCES

\*5. Current edition of California Public Utilities G.O. 112 S.P. 412-1, "External Corrosion Control of Buried Gas Facilities" S.P. 460-1, "Location Class Changes: Pipelines and Mains" S.P. 460.2-2, "Physical Inspection: Pipelines, Mains and Services" S.P. 460-21-4, "Periodic Leakage Surveys of Gas Transmission and Distribution Facilities" S.P. 463.7, "Pipeline History File, Establishing and Maintaining"

#### DEFINITIONS

\*6. <u>Design Pressure (DP)</u> is the maximum pressure permitted by the design sections of the current edition of G.O. 112, applicable to the materials and locations involved. In some cases the DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of G.O. 112 for Type 3 construction for line size listed (See double asterisk entries in Appendix A).

Future Design Pressure is the Design Pressure (DP) to be used for future additions to existing facilities, effective March 1, 1975.

TANDARD PRACTICE	STANDARD PRACTICE NO. 463-8
CAS OPERATIONS	PAGE NO. 2 EFFECTIVE 5/1/75
SUING DEPARTMENT GAS_SYSTEM DESIGN	REPLACING PAGE NO. 2 EFFECTIVE 6/1/7
MAXIMUM OPERATING PRESSURES OF PIPELINES AND MAIN OPERATING AT OR ABOVE 20% OF S.M.Y.S.	is ·
DEFINITIONS	
Maximum Allowable Operating Pressure (MAOP) is th a pipeline or section of a pipeline may be operat the applicable provisions of the current edition	e maximum pressure at which ed in accordance with all. of G.O. 112.
Maximum Operating Pressure (MOP) (PG&E) is the ma gas system may be operated as specified by the Ma Design Department.	ximum pressure at which a nager of the Gas System
<u>Specified Minimum Yield Strength (SMYS)</u> is the mi psi prescribed by the specification under which p manufacturer or as specified in Section 192.107 o G.O. 112.	nimum yield strength in ipe is purchased from the f the current edition of
APPLICATION *7. Procedural details and supplemental data appear is Practice.	n addenda to this Standard
Supplement - Procedural Details Appendix A - Lines in Transmission Capital Operat Appendix B - Distribution Mains Operating at or a Appendix C - Pipe Type Underground Holders Operat	ing at or over 20% of SMYS bove 20% of SMYS ing at or above 20% of SMYS
RECORD	Υ
8. Pressure Recording Charts and Operating Sheets (re document the MAOP and/or MOP (PG&E) of pipelines above 20% of SMYS shall be kept current by the Di- Operations Department assigned with the responsib- operation of facility.	ecord of hourly data) which and mains operating at or vision and/or Pipe Line ility of maintenance and
SUPPLEMENT	
9. The Supplement establishes the procedure for design MAOP and DP for each facility.	gnating the MOP (PG&E),
APPROVED BY: E. F. Sibley Vice President - Gas Operations	· .
naminimumitant. Ditait itau Masanana	n Admin. Analyst or Equal

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Exh. A (Becken)

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\* Paragraph Revised

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Supplement S.P. 463-3 Page 1 Effective 5/1/75

#### PROCEDURAL DETAILS

- \*10. Piping systems listed are not to be operated in excess of the MOP (PG&E). This limitation has been determined by the lowest of the following:
  - a) The test pressure or the rated working pressure of the pipe, valves, and fittings in the line.
  - b) The MAOP of the line as established in accordance with the provisions of the current edition of G.O. 112.
  - c) The MAOP of another pipeline system connected to the first system where there is no pressure control complete with over pressure protection between the two systems.
  - d) Operating conditions that limit pressure.
- \*11. The MOP (PG&E) may equal, but shall never exceed the MAOP or the DP. In some cases where the MAOP is less than DP, it is anticipated that the MOAP may be increased at some future time, in accordance with Subpart K (Uprating) of the current edition of G.O. 112. For this reason, all new additions to an existing system shall have a design pressure at least equal to the design pressure listed in Appendixes A, B and C. Some sections of an existing system may not qualify for the established design pressure and would require reconstruction, testing, or replacement prior to increasing the MAOP. See paragraph 6.
- , 12. New or replacement sections of line should be tested and qualified for the ultimate MAOP of the system, even though the MOP (PG&E) of the system is limited by the MAOP of other facilities connected to it.
- \*13. Any changes contemplated in the MOP (PG&E) or the MAOP of a line operating at or over 20% of SMYS shall be submitted by the Division Gas Superintendent or the Manager of Pipe Line Operations, in letter form, to the Manager of Gas System Design, for review and approval. A copy should be sent to the Manager of Gas System Planning.
- \*14. The MOP (PG&E), MAOP and DP of all newly installed pipelines and mains operating at or above 20% of SMYS, along with those in Appendixes A, B and C shall be confirmed annually by letter on or before February 1, by the Division Gas Superintendents and the Manager of Pipe Line Operations to the Manager of Gas System Design Department, for each facility within the scope of this Standard Practice.
- \*15. The Manager of Gas System Design Department will publish and distribute updated lists of pipeline pressures (Appendixes A, B and C) as required.

Attachment: Appendix A - "Lines in Transmission Capital Operating at or over 20% of SMYS" Appendix B - "Distribution Mains Operating at or above 20% of SMYS" Appendix C - "Pipe Type Underground Holders Operating at or above 20% of SMYS"

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\* Paragraph Revised \*\* Paragraph Added

### Exh A (Becken) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 1/15

# LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

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_ ·		Nominal	`			
Trans.		Pipe	PG&E			Futur
Line	1	Diameter	MOP		Design	Desig
NO.	Location	(Inches)	psig	MAOP	Press.	Press
21	Crockett Station (MP 0.00) to	•	•			
	MP 0.54	24" & 26"	400	405	650	675
. 21	MP 0,54 to Herrmann Station (MP 1,52)	24"	400	675	675	675
21	Herrmann Station to Reis Avenue					070
	(MP 2.71)	16"	250	258	575**	575*1
21	Reis Avenue to Napa "Y" (MP 12.05)	12".	250	375	585	585
21	Napa "Y" to MP 35.05	12" & 26"	450	450	675	675
21	MP 35.05 to MP 51.41	12"	450	500	720	675
21	MP 51.41 to Santa Rosa Compressor	•				0.0
	Station (MP 53.12)	12"	450	500	720	675
21	MP 53.12 to MP 110.4	12"	600	890	890	890
21	MP 110.4 to MP 111.2	12".	600	720	890	890
21	MP 111,2 to MP 111,9	12"	600	890	890	890
21	MP 111.9 to MP 112.1	12"	600	720	890	890
21	MP 112.1 to MP 113.9	12"	600	890	890	890
21	MP 113.9 to Ukiah (MP 114.9)	12"	. 600	720	890	890
21	MP 114.9 to Willits (MP 136.8)	. 8"	600	832	832	890
21	Napa "Y" (MP 0.00) to MP 18.64	16"	450	500	720	675
21	MP 18,64 to Denman Flat Tap				, - <b>•</b>	070 .
	(MP 24.6)	16"	450	500	720	675
21	McDowell Road Tap (MP 34.84) to				. – .	070
	Petaluma Meter Station (MP 35.86)	· 12"	450	500	593	675
21	Adobe (MP 0.00) to San Rafael HPU					015
	Holder Station	16" & 20"	450	500	600	675
21	Adobe (MP 0.00) to San Rafael HPU					0,0
	(MP 21.11)	12"	450	500	675	675
*50	5th & Walnut Streets, Marysville				• •	
	(MP 0.00) to Yuba City HPU					
	(MP 2.87)	8.0	400	400	720**	720**
*50	Yuba City HPU to Biggs Regulator					. – .
	Station (MP 21.62)	8 <sup>,0</sup>	250	250	720**	720**
*50	Biggs Regulator Station to Richvale					
	"Y" (MP 26.94)	6" & 8" ·	250	250	720**	· 720**
*50	Richvale "Y" to Stirling Junction	-				
	(MP 44.87)	6" & 8"	400	400	720**	720**
50	MP 0.00 to Paradise (MP 7.81)	. 81	400	720	720	720
56	Pleasant Creek Field Storage System	<u>4</u> "	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8 <b>"</b>	1300	1440	1440	1440
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\*\*See Paragraph 6

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Exh. A (Becken)

Appendix A S.P. No. 463-8 Effective 5/1/75 Page 2/15

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Trans Line	•	Nominal Pipe Diametor	PG&E		Dogim	Future
No.	Location	(Inches)	neia	MAOD	Design	Design
		(Tucues)	Pard	MAOP	Press.	press.
	McDonald Tsland Field Storage				•	
	System :	$4^{11} - 32^{11}$	2160	2160	2160	2160
57	McDonald Island Compressor Station	·	200	2100	2100	2100
	(MP 0.00) to PLS (MP 7.47)	14" 16" 18"	1025	1025	1025	1025
. 57	PLS (MP 7.47) to Brentwood Terminal		1040	1040	1020	1025
• •	(MP 16.64)	1.8"	867	.867	867	867
57B	Brentwood Terminal to McDonald	·			007	007
··· ·	Island	22"	2160	2160	2160	2160
-1,00	MP.134.5 to Milpitas Terminal			-100	". HT00	2100
	(MP 150.13)	20"	400	400	552	552
.101	Milpitas Terminal (MP 0.00) to					0.02
	Rengstorff Avenue Station (MP 9,80)	· 36"	400	400	400	400
*101	Rengstorff Avenue Station Via					
• `	Bayshore to San Francisco Border					
	Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via					
š•	Bayshore Boulevard to Potrero Gas				•	
	Plant (MP. 44.56)	20"	109	150	275	275
*103	Hollister Meter Station (MP 0.00) to					
14 J	California Street Regulator Station	•				
	(MP 23,55)	12"	350	350	670**	500
103	California Street Regulator Station			• •		
·: . ·	to Harkins Road Meter and Mixer					
	Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San	•				
	Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*10,5	San Lorenzo Regulator Station to San	_			•	
4.3.05	Pablo Station (MP 52.01)	20"	150	198	275	275
×102	Dakland Holder Station (MP 0.00) to					
	Berkeley City Limits (Parallel)	o <i>4</i> 11			•	
105	(MP 2.03) Prine Avenue (MP 0.00) to	24"	150	198	275	275
< 102	Jine 152 (MD 0 10)	0.0.11		<b>A H</b> -	<b></b>	
*105	West Winton Monus Chassen	20"	-250	· 250·	590	500
× 100	(MD 0 00) to I too 152 (MD 0 195)	000 - 040	050			
105B	(The 0.00) to hime 155 (MP 0.185)	22" & 24"	250	250	500	500
	Pablo Station (MP 11 85)	2.44	400	400	10.0	
	Milpitas Terminal (MP 0 00) to	4 <del>4</del> ~	400	400	400	400
ميو مي بيدر . د	Tryington Station (MP 6 88)	2011	16E	400	500	
107	Tracy Station (MP 0.00) to Livermore	. 40 "	400	480	500	720
· · · · · ·	Junction (MP 13.11)	22"	500	500	500	700
			J00 ·	500 .	500	120

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\*\*See Paragraph 6

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Exh.A (Becken) Appendix A S.P. No. 463-8 Effective 1/8/76 Page 3/15

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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
107	Livermore Junction to Irvington					
	Station (MP 31.22)	22"·	477	480	500	720
107S	Irvington Station to Milpitas			100	500	740
	Terminal (MP 38.06)	22"	477	500	500	720
108	Stanpac 2 (MP 0.00) to Vernalis				200	120
	Field Mixing Station (MP 4.59)	16"	500	500	720	890
108	Vernalis Field Mixing Station to			-	•	0.00
	McMullin Ranch Mixer Station					
	(MP 8.79)	16"	408	408	720**	720**
108	McMullin Ranch Mixer Station to				•	
	MP 16.7	16"	408	408	720**	720**
108	MP 16.7 to Las Vinas Station					
	(MP 43.5)	16"	412	412*:	** 720**	720**
108	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant					
+100	(MP 75.10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator					
	Station (MP 27,10) to Stockton					
100	Gas Plant (MP 1.71)	12"	185	185	275	275
109	Milpicas Terminal (MP 0.00) to					
-	Sullivan Avenue Regulator					
*100	Station (MP 43.47)	22" & 30"	375	375	400	400
	Detrome Gen Dient (m 52 10)					
111	Pollero Gas Planc (MP 52./0)	26"	150	150	275	275
يق ياد باد. -	Junction (MP 21 65)					
נור	Freeno Junction to Division One	12.	650	650	800	720
	Load Center (MD 29 05)	0.11				
111	Raisin City Field Collection System	8"	400	400	720	720
111	San Joaquin Field Collection System	4" 28 - 48	800	800	800	800
112	Vernalis Field Collection System	3"& 4"	800	800	960	960
114	West Rio Vista Field (MP 0 00) to	3" = 8"	594	594	800	800
	Antioch Terminal (MP 9 01)	121 0 161	<b>F 1 0</b>			
114	Antioch Terminal to Brentwood	12" & 10"	510	510	800	800
	Terminal (MP 16:59)	2211	EOE	FOF		
114	Brentwood Terminal to Dalton Avenue	44	595	595	595	720
	PLS (MP 28,97)	2211	505	FOF	FOF	
114	Dalton Avenue PLS to Livermore	22	595	- 295	595	720
	Junction (MP 34.05)	2211	405	405	FOF	-
*116	Davis Meter Station (MP 0.00) to	£1 £1	493	490	542	720
	Swingle Junction (MP 3.86)	811	500	500	500	000
*116	Swingle Junction to Sacramento Gas	Ý	500	500	500	800
	Plant (MP 12.89)	8"	500	500	500	700
		Ŭ	500	500	. 500	/20
**See Par	cagraph 6					

\*\*\* MAOP reduced from 426 psig to 412 psig to match 412 psig MOP.

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(See Over)

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Appendix A S.P. No. 463-8 Effective 5/1/75 Page 4/15

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design	Future Design Press.
*118	Division Gas boad Center (MP 0.00)					
•	to Fresno Junction (MP 6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP.0.00)					
`	to Fresno HPU Station (MP 0:66)	. 12"	690	690	720	720
*118	Fresno Junction to MP 12,57	12"	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8",	400	400	.720	720
118	Herndon (MP 0.00) to Athlone	201	400	100		· ·,
	(MP 38,39)	12"	400	400	720	720
118	Livingston to Collier Road (MP 74.89)	6"	400	720	720	720
118	Collier Road to Bradbury Road		400	400	400	400
	Regulator Station (MP 83,74)	6"	400	400	400	400
118	Bradbury Road Regulator Station to	C II	FOO	000	900	200
	. MP 84:69	0	500	890	890	890
113	Davis Meter Station (MP 0.00) to	101	700	702	800	800
110	Swingle Junction (MP 5.05)	124	500	720	800	720
110 .	Swingle Junction to MP 4.00	108	500	520.	800	720
110	$MP 4_{0}00 CO MP 11_{0}14$	<u>ተ</u> ዳ ነ <u></u> በ"	. 500	520	800	720
110	MP 11 35 to N Cacramento HBH	70	500	520	000	720
7.7.9	(MD ] 6 A6)	12"	500	520	800	720
119	N Sacramento HPII (MP 0.00) to					
	Antelone Meter Station (MP 10.17)	12"	500	500	500	600 (
119	N. Sacramento HPU (MP 0.00) to					:
	Antelope Meter Station (MP 8.41)	6" & 16"	500	500	500	600
119	N. Sacramento HPU (MP 0.00) to	•				
	MP.2.80	24 <sup>#</sup>	180	180	545	545
119	Elm and Traction Avenue Regulator				•	•
	(MP 4.6 to MP 5.5)	12"	500	500	500	600
119	Sonoma Avenue Regulator and Del Paso					
; *	Boulevard (MP 0.00) to Roseville					
	Regulator Station (MP 5.25)	6"	180	500	500	500
120	Sutter Creek Field Collection System	4" & 6"	492	492	720	720
120	Sutter Buttes Field Collection System	4" & 6"	485	485	720	720
121	Marysville Buttes Meter Station		•		•	•
• .	(MP 0.00) to Yuba City HPU					
	(MP 11.54)	6 <sup>.n</sup>	485	485	720	720
123	Antelope Meter Station (MP 0.00) to				•	
	Lincoln Junction (MP 13.57)	12"	500	500	670**	670**
124	Lincoln Junction (MP 0.00) to 5th $\&$				<b>-</b> 0 é	
	Walnut, Marysville (MP 23.46)	8"	400	400	720.	600
124	Lincoln Junction (MP 0.00) to Yuba					<b>.</b>
	City HPU (MP 26.03)	16"	600	600	600	600 ·

\*\*See Paragraph 6

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		Nominal				
Trans.	·	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Deşign
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
· ,						. 1
124	Beale Air Force Base Tap (MP 0.00)	<b>C</b> 12	400	400	700	600
	(T 13.31) to MP 3.76	6"	400	. 400	720	600
- 125	Thompkins Hill Field Collection		440	440	500	904
	System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station					
	(MP 0.00) to Union Street Regulator	A 11	250	4 4 3	700	700
	(MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station				•	
	(MP 0.00) to Union Street Regulator	C 11	250	4 4 2	700	700
	(MP 10.89)	6"	350	442	720	720
126	Elk River Road Regulator (MP 0.00)	7.011	167	167	700	700
	to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10	167	167	720	720
126	Union Street Regulator to Line 137	C II	167	165	700	200
	(MP 12.61)	6"	101	107	720	120
TROV	HP Rio Vista Sacramento River	104	000	000	000	000
100-	Crossing (MP 0.00 to MP 0.50)	10	800	800	800	800
TROB'	LP RIO VISTA Sacramento River	104	400	<b>610</b>	000	000
2.2.2	Crossing (MP 0.00 to MP 0.50)	10.	. 420	210	800	800
131	E. RIO VISTA FIEId (MP 0.00 to	100	605	COF	800	000
101	$MP \cup (1)$	1,2 ··	600	600	800	800
. 131	E, RIO VISTA FIELD (MP 0.00) CO	101 0 121		000	900	900
101	Antioch Terminal (MP 9,19)	2411	420	420	600	720
131	Antioch Terminal to MP 10.47	24.	400	400	000	720
121	MP 10,47 to Brentwood Telminar	2411	120	495	600	720
171	(MP 10.07) Deputyond Morrisol to Trainston	24	470	495	000	120
TOT	Stencwood Terminal to Invington	240	500	525	600	650
זכז	Traington Station to Milnitag	41	200	02.0	000	050
701	Torminal (MD 57 (5)	30"	595	595	650	650
120	Milnitas Terminal (MP 0 00) to	50	,555		050	0,50
172	Martin Station (MD 46 59)	24" 30" 36"	400	400	400	400
122	Martin Station to Potrero Plant	24 00 00	400	400	. 400	400
TJZ	(MD 51 50)	24"	145	145	275	275
130	Gierra Vista Avenue (MP $10.32$ ) to	47	740	740	215	215
192	Represented Avenue (Af 10.02) 20					-
	to MD 1 47)	16 <sup>11</sup> s 24 <sup>11</sup>	400	400	400	400
132	Martin Station to Ceneva Avenue	10 0 24		400	400	ΨĢŪ
104	(MP 39 86)	20"	109	150	275	275
133	Gill Ranch Field Collection System	4" 6" 8"	400	500	720	720
134	Herndon Junction (MP 0.00) to			2.00	•	
TO-1	MP 21.57	6" & 8"	400	500	720	720
134	MP 21.57 to Arbios Meter Station		~~~		• • • •	• • • •
	(MP 27.04)	6"	500	500	720	720
	·	-				· · ·

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		Nominal				
Trans.		Pipe	PG&E			Future
Line	and the second	Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
134	Arbias Mater Station to MD 30 50	-	500	500	700	
134	Arbios Meter Station to Firebaugh	0 & 0	. 500	500	720	720
72-3	Regulator Station (MP 34 13)	3" 6 /"	500	500	720	700
136	Ord Bend Meter Station (MP 0 00) to	5 a 4	500	500	720	720
100	MP 3.21	6"	179	565	720	720
136	MP 3.21 to Stirling Junction (MP	Ŭ	412	505	120	720
	12.87)	6" ·	550	550	720	720
*137	Whipple and Albee Streets, Eureka	·	550		720	72.0
	(MP 0.00) to MP 11.83	4" & 6"	167	167	720	720
137	Ryan Slough Regulator Station				740	740
•	(MP 3.58) to Arcata (MP 7.37)	. 8 <b>п</b>	350	350	720	720
138	Helm Tap Station (MP 0.00) to Helm	• •				,
	Junction (MP 14.94)	10"	500	500	650	650
138	Helm Tap Station (MP 0.00) to Helm					
	Junction (MP 14.71)	20" ·	700	700	800	890
138	Helm Junction to Elkhorn Station					
	(MP 20.50)	18 <sup>4</sup> ·	700	865	865	890
138	Elkhorn Station to Burrel Meter					
	Station (MP 22.04)	18"	650	650	865	720
138 <sup>.</sup>	Burrel Meter Station to Adams & Elm				•	
	Meter and Regulator Station (MP 38.5	9) 16"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry			•	•	
•	& Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas			٠		
	Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator					
100	Station (MP 50,02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (1 46.64)	10"	650	720	720	720
1418	Thornton Meter Station to E. Thornton	AH - CH				
7 4 1 10	Field Collection System	4" & 6"	538	538	800	800 -
141W	Thornton Meter Station to W, Thornton	211 101	260	<b>#</b> ¢0	000	
ראיר	N R Divor Teland a Malnut Crowo	3 10.	768	768	800	800
T-3 T	Field Collection System	61 - 91	760	760	000	000
142N	Bakersfield Tan to Bakersfield	Uao	700	768	800	800
T.1011	Meter Station (MP 14.05)	12" 16" 20"	175	475	720	720
142S	Gosford Road Meter Station (MP 0.00)	12 10 20	475	4/5	720	720
1	to Brundage Lane Regulator					
	(MP 9.00)	6" & 10"	600	600	720	720
142	MP 9.00 to Bakersfield Meter			000	144	140
•	Station (MP 11.47)	8" & 12"	300	300	720	720
143	Millar Field Collection System	3" & 4"	796	800	800	800
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\*\*See Paragraph 6

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		Nominal				ť · · ·
Trans.		Pipe	PG&E			Future
Line	· · ·	Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
1.4.4	Miller Motor Station (NO 0 00) to	•	•			,
744	Millar Meter Station (MP 0.00) to	101 - 101		<b>B</b> OC		
345	Millar Fleid (MP 3,50)	10" & 12"	. 796	796	800	800
145 146	Maine Prairie Field Coll. System	3" 4" 6"	796	796	800	800
140	Maine Prairie Meter Station	•				
	(MP 0.00) to Maine Prairie	ón -				
7 4 7	Fleid (MP 6.00)	<u></u> 8"	796	796	. 800	800
147	whipple Road Crossover (MP 0.00) to			•		
	San Carlos Regulator Station	· · · · · · · · · · · · · · · · · · ·			_	
1 / 0	(MP 3,39)	20" & 24"	400	400	400	400
148	MCMullin Ranch Mixer Station					
	(MP 0.00) to Ceres Regulator	•				
	Station (MP 18.24)	8"	408	408	720	720
149	Winters Field Collection System	4" & 6"	· 750	750	800	800
150	Winters Meter Station to Davis	•		•	• •	
	Meter Station (MP 18.09)	6"	750	·750	<sup>-</sup> 800	800
151	Afton Odorizer Station (MP 0.42) to				••, •	•
	Afton Regulator Station (MP 14.05)	6"	250	250	720	720
152	Afton Field (MP 0.00) to Afton					• •
	Odorizer Station (MP 0.42)	6"	250	250	720	720
153	Irvington Station (MP 0.00) to					
	Marina Boulevard Station (MP 18.00)	30"	420	420	500**	500**
*153	Marina Boulevard Station to 2nd and					
	Market Streets (MP 27.89)	24 <sup>u</sup>	246	246	275	275
153	Tap to 50th Avenue Holder	* * *	•		•	
•	Station	16" & 20"	246	246	275	275
153	Tap to Oakland Holder Station	20" ·	246	246	275	275
153	Alvarado Crossover to Line 105	16"	250	250	500**	500**
*153	Fairway Avenue Crossover to Line				:	
	105	20" & 30"	150	198	542	500
155	Durham Field Collection System	4"	680	680	800	800
156	Durham Field (MP 0.00) to Durham		•	· · .		
	Field Meter Station (MP 5.72)	6"	· 680	680	<sup>1</sup> 800	800
158	Dunnigan Hills Field (MP 4.90) to	· · · ·	•			
	Dunnigan Hills Meter & Regulator			•		
-	(MP 13,65)	6"	500	564	800	800
*158	Woodland Field Collection System	3 <sup>11</sup> & 4 <sup>11</sup>	500	564	800	800
159	Pleasant Creek Compressor Station	, <b></b>				000
	(MP 0.00) to V 0.65	<b>4</b> "	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator	-	010	210	1000	575
	Station (MP 3.91)	<b>∆</b> #	975	· 975	1000	075
159	Pleasant Creek Regulator Station to	<b>.</b> .	010		1000	515
	Winters Meter Station (MP 6.08)	° дн - 4	750		'éno'	900
159	Winters Field Collection System	- <b>X</b> 11	-750	750	000	000
			1	1.30	000	01111

\*\*See Paragraph 6

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		Nominal					
Trans.		Pipe	PG&E			Future	L.
Line		Diameter	MOP		Design	Design	
No.	Location	(Inches)	psig	MAOP	Press.	Press.	
		•					
*162	Tracy Station (MP 0.00) to Banta	<u> </u>	0.C.F	0.00			
	Regulator Station (MP 7.73)	ю" & 8"	365	365	720	720	
162	Tracy Station to Byron Road	10/	265	220	700		
<u>م خ</u> م	(MP 5.59)	, 10" - 0"	. 305	/20	720	720	•
164	Coalinga Field Collection System	10" & 8"	498	498	865	890	
1.67	E. Beenive Bend Odorizer Station						•
	(MP 0.00) to Yuba City HPU.	1011 - 164	000	000	000	000	
167	(MP 34.50)	12. 8 10.	800	800	800	800	
167	Wild Goose Fleid Meter (MP 0.00) to						
	Wild Goose Mixer & Odorizer Station	108	000	000	000		
160	(Parallel)	10	800 -	800	800	800	
167	Wild Goose Mixer to Gridley	0.11	000	oo.	000		
	Junction (MP 6.54)	8" 28 - 48	800	800	800	800	
167	Wild Goose Collection System	3" & 4" .	800	800	800	800	
167	Princeton Field Collection System		000	000			
	(MP 4.12 to MP 7.60)	3	800	800	800	800	
167	Compton Landing Fleid Collection		000	000			
200	System	· 4" & 6"	008	800	800	800	
167	Bounde Creek Field Collection System	4	800	800	800	800	
168.	River Island Fleid Collection System	411 611 011	000	000			
100	Hr Dirow Taland Wield Collection Sustan	4 0 8	800	800	800	800	~
108	RIVER ISLAND FIELD COTTECCION System	20 00	600		000	000	I.
160	LF Deshire Dend Willows Ilane Cose	3" = 0"	098	698	800	800	
102 .	a Derking Lake Wield Collection	•					
	& PELKINS Lake Field Correction	311 - 2011	800	900	200	900	
173	W Peohive Pend Meter Station	5 - 20	000	800	000	800	
1/2	(MP () (0) to Swingle Junction						
•	(MP 69 81)	18" 5 20"	800	800	800	800	
172	Swingle Junction to Sacramento Cas	Tộ ở 20	000	000	000	000	
J. / 44	Plant (MP 79.15)	16"	500	520	720	720	
172	Crosstie Between Line 172 (MP 0.00)		000	520	120	120	
×1 <i>1</i>	s Tipe 167 (MP 0.60)	10"	800	800	800	800	
172	Crosstie Between Line 172 (MP 75.45)					000	
	& Line 119 (MP 9.68)	12"	500	520	720	720	
173	Line 123 (MP 0.00) (V 6.51) to					,40	
	Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720	
174	Arbuckle Field Collection System	2" - 10"	800	800	800	800	
176	Roberts Island Field Collection						
	System	2" <del>-</del> 8"	555	555	800	800	
176	Roberts Island Field (MP 0.00) to						
	Tracy Station (MP 18.85)	6" & 8"	555	555	800	800	
177	Sacramento Avenue Junction (MP 0.00)						
-	to Grapeway Regulator Station						
	(MP 0.87)	10"	819	819	960	960	

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Trans.		Nominal Pipe	PG&E			Future
Line.		Diameter	MOP		Desim	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
177	Graneway Regulator to Stirling	• •				
<i><b>L</b></i> ,,	Junction Meter Station (MP 7.68)	6" c 10"	469	469	600	600
177	Fell Regulator & Odorizer (MP 0.00)	· 4 4 ·	-100	. 405	.000	000
1.71	to Sacramento Avenue Junction					
	(MP 4 75)	16"	819	819	960	960
177	Sacramento Avenue Junction to	20	010	010	200	500
111	Corning N Dome Station (MP 29.09)	10"	819	819	960	960
177	Tap 27 60 (MP 0 00) to Tap 29 87	±0	010	6.2.5		500
111	(MD 2 19) Parallel Section Near		•	•		
	Corning N Dome	6" 5 8"	819	819	960	960
177	Corning N. Dome Station to Cerber		015	017	500	500
<i><b>T</b></i> ,,	Compressor Station (MP 37 84)	12"	819	819	960	960
177	Cerber Compressor Station to	12	010	012	200	500
<b>T</b> 1 1	Cummings Creek PLS (MP 163 04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill	214	010	010		200
J. / /	Meter & Regulator Sta (MP 178 18)	12"	430	430	720	720
177	Thompkins Hill Meter & Regulator		400	400	140	12.0
±775	Station to Evan Slough Regulator					
	Station (MD 192 26)	32"	350	142	600	600
177	Crossia Botween Lines $177 (T 37 8)$	74	550	772	000	000
177	and Line $A00$ (V 149 18)	3.211	819	819	960	960
177 '	Tan $(V 43 87)$ to Red Bluff and	10		017	200	200
477	Diamond National (MP 1 24)	6"	819	819	960	960
コフブ	Pancho Canay Field Coll System	<u>د</u>	819	819	960	960
180	Kettleman Hills Field Coll. System	8" - 20"	421	421	500	500
181	Soan Lake Meter Station (MP 0.00)	0 20	-144	-10 1	200	500
TOT	to V 1 56	10"	300	300	400	400
181	V 6 19 to Watsonville Meter Station	20	500	500	400	400
TOT	(MP 20.15)	10 <sup>11</sup> £ 12 <sup>11</sup>	300	303	400	400
181	Anzar Road Meter and Regulator	10 0 10	500	505	40,0	400
101	(MP 0 00) to Watsonville Meter					
	Station (MP 11.19)	10" 16" 12"	300	303	400	400
*192	Serva " $X$ " (MP 0.00) to Shell				100	100
102	Chemical Meter Station (MP 18.23)	$4^{m} - 12^{m}$	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun		100	100	000	000
105	Junction Meter Station (MP 18.87)	12"	435	435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	Firebaugh Regulator Sta. (MP 0.00)	- •				
~~~	to Moffat Field Meter Sta. (MP 6.35)	3"	320	320	800	800
185	Hollister Field Collection System	4"	396	396	600	500
186	Dos Palos Meter Station (MP 0.00)	*				
~~~	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720
	an the sale stall draw draw and shi	·· · · ·				. – •

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Exh. A (Becken)

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Trans:PipePGgsPtLineNo.LocationDiameterMOPDesignDeNo.Location(Inches)psigMAOPPress.Pr187San Ardo Field Meter Station(Inches)psigMAOPPress.Pr187San Ardo Field Meter Station(Inches)psigMAOPPress.Pr187San Ardo Field Meter Station6"3133138708187Jolon Road Regulator Station toHarkins Road Meter & Mixer Station8"3133137207189Elk River Road Regulator Station8"3133137207189Elk River Road Regulator Station8"3133137207190Kettleman Compressor Station10"3504427207190Coalinga Nose Storage12" & 16"216021602160191Antioch Terminal (NP 0.00) to Los16"216021602160191MP 3.87 to MP 9.93 Via Pittsburg20" & 24"31539060060191MP 9.93 to Reliez Station Road16" 20" 24"31533860060191MP 32.7610"26827040040*191Munction Line 191 (MP 29.36) to10"26826840040*191AJunction Line 191 to Ardilla and10"26826840040	uture esign ress. 870 720 720
Line Location Diameter MOP Design De No. Location (Inches) psig MAOP Press. Pr (Inches) psig MAOP Pr (Inches) psig MAOP Press. Pr (Inches) psig MAOP Pr (Inches) psig MA	esign ress. 870 720 720
No.Location(Inches)psigMAOPPress.Pr187San Ardo Field Meter Station (MP 0.00) to Jolon Road Regulator Station (MP 22,58)6"3133138708187Jolon Road Regulator Station to Harkins Road Meter & Mixer Station (MP 65.70)8"3133137207189Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)10"3504427207190Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)12" & 16"216021602160191Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)30" & 34"315600600191MP 9.93 to Reliez Station Road Regulator Station Road Regulator Station New 29.366" 10"26826840040*191Junction Line 191 (MP 29.36) to MP 32.7610"26826840040*191AJunction Line 191 to Ardilla and Regulator Station (MP 35.83)10"26826840040	ress. 870 720 720
187       San Ardo Field Meter Station (MP 0.00) to Jolon Road Regulator Station (MP 22,58)       6"       313       313       870       8         187       Jolon Road Regulator Station to Harkins Road Meter & Mixer Station (MP 65.70)       8"       313       313       720       7         189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P.       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160       2160       2160       2161         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2161         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         191       MP 9.93 to Reliez Station Road Regulator Station (MP 35.83)	870 720 720
(MP 0.00) to Jolon Road Regulator Station (MP 22.58)       6"       313       313       870       8         187       Jolon Road Regulator Station to Harkins Road Meter & Mixer Station       8"       313       313       70       7         189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160       2160       2160       2160         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       338       600       60         191       MP 9.93 to Relize Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Relize Station Road Regulator       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       4	870 720 720
Station (MP 22.58)       6"       313       313       870       8         187       Jolon Road Regulator Station to Harkins Road Meter & Mixer Station       8"       313       313       313       870       8         189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)       8"       313       313       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       10"       350       442       720       7         190       Coalinga Nose Storage Field to Union 011 Company (MP 16.22)       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       390       600       60         *191       Refliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10"       268       268       400       40 <tb< td=""><td>870 720 720</td></tb<>	870 720 720
187       Jolon Road Regulator Station to Harkins Road Meter & Mixer Station (MP 65.70)       8"       313       313       720       7         189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160       2160       2160       2160         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 9.93 to Relize Station Road Regulator Station       16" 20" 24"       315       390       600       60         *191       Relize Station Road Regulator Station to MP 29.36       8" 10" 12"       268       263       400       40         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       40         *191A       Junction Line 191 to Ardilla and Conduct Deliver Deliver       10"       268       268       400       40	720 720
Harkins Road Meter & Mixer Station         (MP 65.70)       8"       313       313       720       7         189       Elk River Road Regulator Station       (MP 0.00) to Humboldt Bay P.P.       10"       350       442       720       7         190       Kettleman Compressor Station       10"       350       442       720       7         190       Kettleman Compressor Station       10"       350       442       720       7         190       Coalinga Nose Storage Field to       10"       350       442       720       2160	720 720
(MP 65.70)       8"       313       313       720       7         189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       10"       350       442       720       7         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2160         191       Anticch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator MP 32.76       8" 10" 12"       268       283       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and       10"       268       268       400       40	720 720
189       Elk River Road Regulator Station (MP 0.00) to Humboldt Bay P.P. (MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160	/20
(MP 0.00) to Humboldt Bay P.P.       10"       350       442       720       7         190       Kettleman Compressor Station       (MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station       (MP 0.00) to Coalinga Nose Storage       12" & 16"       2160 <td< td=""><td>720</td></td<>	720
(MP 1.72)       10"       350       442       720       7         190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160       2160       2160       2160         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160 </td <td>720</td>	720
190       Kettleman Compressor Station (MP 0.00) to Coalinga Nose Storage Field (MP 16.08)       12" & 16"       2160       2160       2160       2160         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       216	E. F.
(MP 0.00) to Coalinga Nose Storage         Field (MP 16.08)       12" & 16"       2160       2160       2160         190       Coalinga Nose Storage Field to       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los       Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       5tation to MP 29.36       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to       10"       268       270       400       40         *191       MP 32.76       10"       268       268       400       40         *191       MP 32.76 to Martinez Meter and       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and       0""       268       <	
Field (MP 16.08)       12" & 16"       2160       2160       2160       2160         190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator Station to MP 29.36       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and Origine Della control Dependence       268       268       400       40	
190       Coalinga Nose Storage Field to Union Oil Company (MP 16.22)       16"       2160       2160       2160       2160         191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       16" 20" 24"       315       338       600       60         *191       Junction Line 191 (MP 29.36) to MP 32.76       10" 12"       268       283       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10" 268       268       400       40         *191A       Junction Line 191 to Ardilla and Duritor Divide Derubation       10" 268       268       400       40	.60
Union Oil Company (MP 16.22)       16"       2160	
191       Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)       30" & 34"       315       600       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg Power Plant       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator Station to MP 29.36       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and Onione Brible a Divide Brible and       10"       268       268       400       40	.60
Medanos Junction (MP 5.81)       30" & 34"       315       600       60         191       MP 3.87 to MP 9.93 Via Pittsburg       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to       10"       268       270       400       40         *191       MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and       10"       268       268       400       40	
191       MP 3.87 to MP 9.93 Via Pittsburg       20" & 24" 315 390 600 60         191       MP 9.93 to Reliez Station Road       16" 20" 24" 315 338 600 60         191       MP 9.93 to Reliez Station Road       16" 20" 24" 315 338 600 60         *191       Reliez Station Road Regulator       538 600 60         *191       Reliez Station Road Regulator       8" 10" 12" 268 283 400 40         *191       Junction Line 191 (MP 29.36) to       8" 10" 12" 268 270 400 40         *191       MP 32.76 to Martinez Meter and       10" 268 270 400 40         *191       MP 32.76 to Martinez Meter and       10" 268 268 400 40         *191A       Junction Line 191 to Ardilla and       10" 268 268 400 40	00
Power Plant       20" & 24"       315       390       600       60         191       MP 9.93 to Reliez Station Road       Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to       0"       268       270       400       40         *191       MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and       10"       268       268       400       40	
191       MP 9.93 to Reliez Station Road         Regulator Station       16" 20" 24" 315 338 600 60         *191       Reliez Station Road Regulator         Station to MP 29.36       8" 10" 12" 268 283 400 40         *191       Junction Line 191 (MP 29.36) to         MP 32.76       10" 268 270 400 40         *191       MP 32.76 to Martinez Meter and         Regulator Station (MP 35.83)       10" 268 268 400 40         *191A       Junction Line 191 to Ardilla and	00
Regulator Station       16" 20" 24"       315       338       600       60         *191       Reliez Station Road Regulator       5       8" 10" 12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to       8" 10" 12"       268       270       400       40         *191       MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and       10"       268       268       400       40         *191       MP 32.76 to Martinez Meter and       10"       268       268       400       40         *191       Junction Line 191 to Ardilla and       10"       268       268       400       40	
<pre>*191 Reliez Station Road Regulator Station to MP 29.36 8"10"12" 268 283 400 40 *191 Junction Line 191 (MP 29.36) to MP 32.76 10" 268 270 400 40 *191 MP 32.76 to Martinez Meter and Regulator Station (MP 35.83) 10" 268 268 400 40 *191A Junction Line 191 to Ardilla and Control Packles Control Packles</pre>	00
Station to MP 29.36       8"10"12"       268       283       400       40         *191       Junction Line 191 (MP 29.36) to MP 32.76       10"       268       270       400       40         *191       MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)       10"       268       268       400       40         *191A       Junction Line 191 to Ardilla and Divide Pable a David b Develator       10"       268       268       400       40	
<pre>*191 Junction Line 191 (MP 29.36) to MP 32.76 10" 268 270 400 40 *191 MP 32.76 to Martinez Meter and Regulator Station (MP 35.83) 10" 268 268 400 40 *191A Junction Line 191 to Ardilla and Graine Prints Desiration</pre>	00
MP 32.76       10" 268 270 400 40         *191       MP 32.76 to Martinez Meter and       10" 268 268 400 40         Regulator Station (MP 35.83)       10" 268 268 400 40         *191A       Junction Line 191 to Ardilla and         Grain Data Description       Description	•
*191 MP 32.76 to Martinez Meter and Regulator Station (MP 35.83) 10" 268 268 400 40 *191A Junction Line 191 to Ardilla and	0Ò
*191A Junction Line 191 to Ardilla and	
*191A Junction Line 191 to Ardilla and	00
Camino Pablo & Orinda Regulator	
Station 3" 6" 8" 268 283 400 40	20
*1918 Junction Line 191 to Reliez Valley	
Road Regulator Station $8^{\prime\prime}$ 268 283 400 40	20
195 Rice cleek field collection System $2^{-6} = 8^{-6} = 819 = 960 = 9$	50
193 Kirkwood & Pige Creek Field North	50
Collection Sustem	
194 McMullin Ranch Miver (MP 0.00) to	<b>3</b> 0
$\frac{104}{100} = \frac{100}{100} = $	20
194 McMullin Field Dehvdrator Station	10
(MP 0.00) to California Ammonia	
Company (MP 4.39) $6"$ 437 437 960 960	0
194 McMullin Ranch Field Collection	0
System 2" & 10" 437 437 800 800	0
195 Rio Vista Field Collection System	~
(HP) 2" - 16" 800 800 800 800	~

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	•	Nominal				
Trans.		Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
*195	Rio Vista Field Collection System					
	(LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to					
	Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21.41 to MP 31.23	10" & 12"	320	500	720	720
197A	MP 31,23 to MP 39,57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8"	320	· 320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	V 19.57 to V 31.24	8"	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection					
	System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection					
	System (LP)	2" - 16"	510	510	800	800
200	Liberty Islands Field Collection					
	System	<b>4</b> "	800	800	800	800
200	Lindsay Slough Field Collection					
	System	3" - 10"	800	868	960	960
201	Todhunters Lake Field Collection					
	System	2" - 12"	800	960	960	960
202	Grass Valley Tap to Regulator			•		
• -	Station near Robin Avenue, Grass					
	Valley (MP 23.72)	6" & 8"	400	720	720	600
203	Greens Lake Field Collection System	4" ·	500	800	800	800
204	Bender Gas Well Collection System	3" & 4"	500	890	890	890
206	Pleasant Creek Tap to Pleasant				•	
	Creek Compressor Station	12".	975	1440	1440	1440
207	Conway Ranch Field Collection System	4" 6" 8"	800	1000	1000	1000
209	Line 400 to Line 128 at Willows	4"	450	450	720	720
210	Rio Vista "Y" (MP 0.00) to Creed					
	Station (MP 1.40)	16"	650	650	800	800 <sup>°</sup>
210	Creed Station to Napa "Y" (MP 25.98)	16" & 18"	650	650	740	740
210	Creed Station to Cordelia Regulator		·			
	Station (MP 19.47)	32"	650	675	675	675
210	Cordelia Regulator to Napa "Y"					
	(MP 25.62)	10" & 12"	650	650	800	800
210	Rio Vista "Y" to Creed Station					
	(MP 1.36)	10"	650	650	800	800
210	Cordelia Regulator to Herrmann					
	Station	24"	650	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil					
,	Meter Station	18"	650	720	720	675

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Exh. A (Becken)

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
215	MP 0.00 to MP 20.05	12"	500	890	890	890
220	Rio Vista "Y" (MP 0.00) to Davis					
	Meter & Regulator Station	•				
	(MP 22,01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan					
	Meter & Regulator Station	67 × 01	<b>5</b> 00			
2007	(MP 34.11) Colorado Diver (MD 0 00) to Hencek	ъ. 7 8.,	500	500	500	800
JOOA	Compression Station (MD 0.64)	2011 - 241		700	700	
3007	Monock Compressor Station to DIS 10	50" & 54"	660	700	700	700
	(MD 40 87)	. 340	067	067	990	202
300A	PLS $\frac{1}{10}$ to PLS $\frac{2}{10}$ (MP $\frac{103}{72}$ )	341	815	007 Q15	090	890
300A	PLS 2A to PLS 2AX (MP $130.37$ )	34"	688	688	600	610
300A	PLS 2AX to Hinkley Compressor		000	000	000	000
	Station (MP 159.33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS	_	2,2		575	575
	3A (MP 203.02)	34"	861	8 <b>6</b> 1	890	890
300A	PLS 3A to PLS 4A (MP 256.21)	34"	803	817	. 817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor				•	
••	Station (MP 353.85)	34"	669	688	· 688	688
300A	Kettleman Compressor Station to					
•	PLS 6A (MP 436.74)	· 34" ·	840	840	890	890
300A	PLS 6A to Pacheco Pass PLS					
• •	(MP 461.07)	· 34"	715	. 715	715	715
300A	Pacheco Pass PLS to PLS 7A Silver	• •				
	Creek (MP 490.65)	34"	631	631	715	715
300A	PLS 7A to Milpitas Terminal Station					
	(MP 502,34)	34"	558	558	676	676
.300B	Colorado River (MP 0.00) to Topock		~ ~ ~			
2005	Compressor Station (MP 0.45)	34"	660	660	735	735
200B	AD 40 40	241	067	067		
300¤	(442 + 40.43)	54"	867	867	894	894
3008	PLS 1B COPLS 2B (MP 103.01)	241	600	821	821	821
300B	PLS 2BX to Hinkley Compressor	24	000	000	666	688
500D	Station (MP 161.02)	341	573	573	573	E 7 3
300B	Hinkley Compressor Station to PLS	5-4	575	575	575	575
•	3B (MP 203.07)	34"	861	861	897	897
300B	PLS 3B to PLS 4B (MP 256.64)	34"	803	816	816	816
300B	PLS 4B to PLS 5B (MP 299.00)	34"	736	757	757	757
300B	PLS 5B to Kettleman Compressor		•			121
	Station (MP 354.02)	34"	669	688	688	688

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Exh. A (Becken)

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		Nominal				
Trans.		Pipe	PG&E		_	Future
Line		Diameter	MOP		Design	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
300B	Kettleman Compressor Station to PLS	•		· ·		
,	6B (MP 436.85)	34"	840	840	890	89Ó
300B	PLS 6B to Pacheco Pass PLS (MP		• :		• •	
•	461.08)	34"	715	715	<sup>′</sup> 715	715
300B	Pacheco Pass PLS to PLS 7B Silver	•				
	Creek (MP 490.92)	34"	631	631	715	715
300B	PLS 7B to Milpitas Terminal Station					
	(MP 502.64)	3'4 "	<sup>.</sup> 600	669	669	669
301G	Hollister Meter Station (MP 0.00)			4	•	
	to Moss Landing Power Plant				:	
•	(MP 24.68)	24" & 30"	500	500	500	500
301A	Hollister Meter Station (MP 0.00)					
	to Moss Landing Power Plant				- -	
	(MP 24.84)	20 <sup>#</sup>	3,96	396	500	500
301B	Dolan Road Meter Station (MP 0.00)		•		-	-
	to Hilltown Regulator Station					-
	(MP 14.02)	12"	408	408	600	500
*301C	Hilltown Regulator Station to		•	۰. ۰		
	Harkins Road Meter and Mixer	<u>.</u>				
+2010	Station (MP 17.20)	8",& 12"	313	313	500	500
*30 IF.	Espinosa Road (MP 0.00) to Marina	1.6.11		410	420	
400755	Regulator Station (MP 7.94)	10	408	412	400	412
VOIR	Crosstle - Monterey $\#2 \pmod{0.00}$ to	101		400	500	500
3015	Main Jui (MP 1.02) Angar Man Station to Angar Poad	12	408	408	500	500
3010	Motor & Pogulator Station (MD 1 72)	101	F00 <sup>1</sup>	500	500	500
3018	Anzar Man Station to Anzar Road	10	500	500	.500	500
50 IA	Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes, W. Butte, Butte	. 10 .	. 500		. 500	200
004	Slough, Grimes, Sycamore, Kirk &					
	Buckeve Field Collection System	2" - 20"	1000	1000	1000	າດດດ
302	Buckeye Creek PLS (MP 0.00) to	•	÷00,0	TÂÔO '	1000	1000
	Hershev Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood		-;-			2,2
	Terminal (MP 7.86)	36"	720	720	720	720
303	Brentwood Terminal to Irvington	•		-		
	Station (MP 42.83)	36"	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop		- '	•	- 1	
	Dehydrator & Odorizer Station			•		
	(MP 11.29)	12"	825	825	825	825
304	Lathrop Field Collection System	3" - 12"	825	825	825	825
306	Kettleman Compressor Station			•••		
	(MP 0.00) to Dry Creek PLS					
	(MP 43.3)	20"	840	840	840	840

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Exh A (Becken) Appendix A S.P. No. 463-8 Effective 5/1/75 Page 14/15

Trans,		Nominal Pipe	PG&E			Future	۱
Line		Diameter	MOP		Design ·	Design	
NO.	Location	(Inches)	psig	MAOP	Press.	Press.	
306	Dry Creek PLS to Morro Bay Power Plant (MP 70.02)	20"	650	650	840	840	
307	Spreckels Sugar Meter Station (MP 0.00) to Spreckels Sugar	011	500	500	015		
307	Derrick Road Tap (MP 0.00) to		500	000	915	090	
311	Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station	,0 1011 a 1211		700	913	090	
311	Parallel Section (MP 31.97) to	  	700	200	. 960	890	
312	MP 38.49 Line 300A (MP 0.00) (T 273.27) to Paloma Field Meter Station	12	700	810	960	890	
313	(MP 8.00) Lucerne Valley Tap Meter Station to	8"	736	740	820	820	
314	Permanente Company Meter (MP 34.4) Hinkley Compressor Station (MP 0.00)	8" & 10"	5 <b>7</b> 3	573	720	720	
	to MP 24,19	12"	861	861	890	890	
314	MP 24.19 to MP 29.00	10"	260	260	720	720	
314	MP 29.00 to Black Mountain Meter &	01 - 201	260		40.0	-	,
	Regulator Station (MP 43.18)	8" & 10"	260	260	720	720	Ę
314	Tap to Riverside Cement	. 8"	260	260	720	720	
314 *316	Tap to Airbase Road Meter Station Dutch Slough & River Break Field	8"	260	260	720	720	
317	Collection System Chickahominy Field Collection	2" - 12"	800	80 <b>0</b>	800	800 .	
	System	3"	975	975	975	975	
318 372	Black Butte Field Collection System Ridgecrest Tap to Ridgecrest Primary	3"	911	911	960	960	
400 .	Regulator California-Oregon Border (MP 0.00)	6"	700	700	960	960	
	to Tionesta Compressor Station (MP 24.60)	36"	911	911	911	911	
400	Tionesta Compressor Station to Indian Springs PLS (MP 48.64)	36"	911	911	911	911	
400	Indian Springs PLS to Burney Compressor Station (MP 82.33)	36"	911	911	911	911	
400	Burney Compressor Station to	36"	911	911	911	911	
400	MP 104.20 to Shingletown PLS		011	015	0/7	040 511	•
400	Shingletown PLS to Gerber Compressor	361	27T	011	744 013	942 011	
	Station (MP 149.18)	ac	211	211	ATT	911	

Appendix A) S.P. No. 463-8 Effective 5/1/75 Page 15/15

LineDiameterMOPDesignNo.Location(Inches)psigMAOPPress.	Press.
400 Gerber Compressor Station to Delevan Compressor Station	
(MP 197.83)	011
400 Delevan Compressor Station to	211
Buckeye Creek PLS (MP 233.87) 36" 1040 1040 1040	1040
400 Buckeye Creek PLS to Antioch	1040
Terminal (MP 298,87) 26" & 36" 975 975 975	975
402 Redding-Calaveras Tap (MP 0.00) to	270
PLS (MP 9,96) 12" 300 300 865	865
402 MP 9.96 to Calaveras Cement Tap	
(MP 38,10) 8"10"12" 300 300 720	720
403 Rio Vista "Y" (MP 0.00) to Creed	
Station (MP 1.38) 16" 650 650 855	800

\*Indicates that line or sections of line are under 20% SMYS, but are listed for the purpose of continuity.

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Appendix<sup>Becken)</sup> S.P. No. 463-8 Effective 5/1/75 Page 1/3

# DISTRIBUTION MAINS OPERATING AT OR OVER 20% SMYS

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	Nominal				
	Pipe	PG&E			Future
•	Diameter	MOP		Desim	Design
Location	(Inches)	nsia	MAOD	· Droce	Drose
	(Inches)	Para	FINOE	FIC33.	FICSS.
COAST VALLEYS DIVISION	• •				
Monterev #1 - Harkins Road Meter & Mixer					
Station to Fig-Frank Streets Regulator	· •	•		:	
Station	8" © 12"	313	313	500	400
Monterey #2 - Fort Ord to Fig-Frank Streets	0 d a=	0.20	010	500	-100
Regulator Station	104 124 164	212	313.	400 -	400
Monterey (V-18 65 to Carmel V-2 13) Aquatito	10 12 10	. <b>.</b>	515	400	. 400
Boad Bogulator Station	Q1 c 101	212	212	500	. 100
Road Regulator Station	0.810.	272	272	500	. 400
narkins Road Meter and Mixer Station to				500	500
	8" & 10"	313	313	500	500
MP 2.45 to MP 3.50	8"	313	313	500	500
MP 3.50 to California Street Regulator				•	
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel				•	
Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
		3 N	•		•
COLGATE DIVISION				· ·	
Yuba City HPU Holder to Market Street					•
Regulator Pit	6" & 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
				•	• • • •
DRUM DIVISION			•		
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	315	338	600 · ·	600
General Chemical Tap	4 <sup>11</sup>	315	338	600	600
Pacific States Steel Feeder	12"	420	420	600	500
Warm Springs Feeder	2" & 4"	465	465	500	600
Port Costa Feeder	6"	315	338	600	· 600
50th Avenue Holder Feeder Off Line 105	16" & 20"	150	198	275	275
Pittsburg Town Feeder	12"	315	338	600	- coo
Concord Feeder to Alpha Beta Regulator	8"	315	600	600	600
Oleum Steam Plant Tap	8" 10" 12"	250	250	275	275
San Ramon Feeder	16"	500	500	500	215 600
Standard Oil Reader	2011	400	400.	400	400
CONTRACT OFF LOGOCT	22	400	400	400	400

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Exh, A (Becken) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 2/3

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter	I OU	450	500	C 7 5	675
Station $124$ time 21 ( $N_{\rm e}$ 16 15) to Kilburn Regulator	. 8.	450	500	675	6/5
Station	10"	450	500	675	675
Kilburn Regulator Station to Yountville	8" & 10"	450	. 500 500	675	675
6" Sonoma Tap Line	6"	450	500	675	675
	• t	,			
SACRAMENTO DIVISION					
Sacramento Gas Plant to North Sacramento HPU					
Holder	8" & 12"	260	260	400	400
Tremont Tap to Dixon Meter Station	6".	550	750	800	800
Tap to Union Carbide (MP 0.00 - MP 4.05)	8" & 10"	412	412	720	720
SAN FRANCISCO DIVISION		•		:	
Peninsula Main	16" & 20"	109	109	275	275
Hunters Point Power Plant Feeder	20"	145	145	275	275
				_	
SAN JOAQUIN DIVISION	2.11	000 ·	000	000	000
Tranquility reeder	3"	800	200	900	900
Yosemite Avenue Feeder	· 0 ·	- 400 - 002	720	720	720
Line Sour to Callfornia-Portland Cement Company	5	400	400	800	865
Sherring Highway Feeder	411	400 500	400	400	720
Dixon Diver Feeder	611	650	720	720	720
Clovic Fooder Main	6" £ 12"	650	650	720	720
Vinewood Avenue Feeder	4"	400	720	720	720
Winton Avenue Feeder	6" .	400	720	720	720
Cressev Way Feeder	4" & 6"	400	400	720	720
Valley Nitrogen Feeder	6"	650	650	800	720
· · · ·					
SAN JOSE DIVISION		•			
Half Moon Bay Feeder Line	8" 10" 12"	400	577	577**	577**
Santa Cruz to Davenport	10" & 12"	300	303	. 557**	400 ·
Milpitas Terminal to PLS #7, Kings Road,		200	200	045	FOC
20" Feeder	TP. 50. 30.	200	200	410	520
Watsonville to River Street Regulator		200 '	202	577++	400
Station	1011 0. 8 TO.,	300	303	51797	400
Watsonville to Rob Roy Junction	. 10	200	202	557**	400

\*\*See Paragraph 6

Exh.A (Becken) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 3/3

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
SHASTA DIVISION					
Simpson Lee Paper Mill Feeder	6"	300	. 300	720 .	720
U.S. Plywood Plant Feeder	4 <sup>11</sup>	300	720	720	720
Enterprise Town Feeder	4" & 6"	300	300	720	720
Calaveras Cement Company Feeder	8"	300	300	720	720
Red Bluff District Tap	2 <sup>1</sup>	911	911	911	9 <b>1</b> 1
STOCKTON DIVISION					
Roth Road Feeder - Manteca	4"	408	720	720	720
Valley Tomato Trunk Line	8"	412	500	720	720
Eight Mile Road Trunk Line	4 <sup>11</sup> & 8 <sup>11</sup>	412	426	720	720
Ripon-Modesto Feeder (Parallel)	8" & 12"	408	408	720	720
Dale Road to North Avenue Feeder	12"	408	408	720	720
Riverbank Feeder	8" & 10"	408	720	720	720
Carpenter Road Feeder	12"	412	500	720	720
Modesto Feeder Via Pauline Boulevard	4" & 6"	408	408	720	720
Turner Road Feeder (Parallel)	4" & 8"	300	300	720	720
McArthur Road Feeder	4"	295	295	400	720
Louise Avenue Feeder	8"	408	408	720	720
C.Y.A. Feeder - Stockton	6"	412	426	720	720
Morgan Road Feeder - Modesto	12"	260	720	720	720
Swain Road Feeder	6" & 8"	125	400	<b>`400</b>	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

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Exh.A(Becken) Appendix C S.P. No. 463-8 Page 1/1 Effective 5/1/75

# PIPE TYPE HIGH PRESSURE UNDERGROUND HOLDERS OPERATING AT OR OVER 20% SMYS

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Location	Length (Feet)	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
COLGATE DIVISION -						
Yuba City	24,784	34"	525	525	. 550	550
NORTH BAY -						
San Rafael	37,392	30"	650	650	690	690
SACRAMENTO DIVISION -	•					
Sacramento	78 <b>,</b> 452	34"	445	445	550	550
SAN JOAQUIN DIVISION -						
Fresno	43,722	30"	690	690	690	690
SAN JOSE DIVISION -						
Santa Cruz	7,221	30"	660	660	660	660
	4,838	34"	660	660	660	660

## LINE NO. 101

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<b>`</b>	F		1		r				1		DIV	1	NIE	·····		REMARKS
)::		SIGNAT	TON	1	MAR	DLD	- NP	65-76 H D	' OATE	LOCALICA	<u></u>	MOP	MADP	ID P	EDD	
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· 1	MIL DITAS T	Ebm. (m	r (00,09	10								· ·				
%.	RENGSTORE	F STA.C	NP9,80)	. 36"	400	400	400		T 12/65		JOSE .	400	400	400	400	TESTED IN DEC. 1965
	1	·····	1	<u> </u>		<u> </u>		ļ			·	·				SAN JOSE DIV FEB,74 LTI
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2.	RENGSTO REF.	<u>Ave sta</u>	VIA BAY	SHORE				· · · · ·	·		<u> </u>	<u> </u>				
· <u> </u>	TO S.E BOR	DER MI	C. STA (M	1033.68)	0.5	000		190	alcho	Oir Locality	SAN	106	190	275	Ado	1974 ITO EPON D. WHAIFT
				26	2.50	1850	400	100	8/5/61	RENSOR	JOSE	+-100 ·	1004	<u></u>		TO R.L. SISLER!
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ť	SE BOANES	mro ST	N VIA R	WSHONE											··· ·	operating 1-20-76 so 18011 MOP
0	To PATOL	CAC GAC	PLANT (M	PA4,56)											L	is validi LCM 1-23-76
··	IO IOINE	<u>, 70, 71, 7</u>	1	20″	150	150	275	150	12/8/69	SEBMS	FRAN	109	150	2.75	275	109 MOP BECAUSE OF
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DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS FILE NO. 463 RE LETTER OF SUBJECT Standard Practice 463-8 MAOP of Pipelines and Mains Operating Over 20% of SMYS

#### April 9, 1979

DIVISION MANAGERS MANAGER, GENERAL CONSTRUCTION MANAGER, PIPE LINE OPERATIONS DIVISION GAS SUPERINTENDENTS DISTRICT MANAGERS DISTRICT GAS SUPERINTENDENTS DIVISION ADMINISTRATIVE ANALYST OR EQUAL DIRECTOR, PROCEDURES AND ORGANIZATION:

The attached Standard Practice 463-8 dated April 9, 1979 replaces the revised Standard Practice issued on May 1, 1975.

The Standard Practice no longer contains Appendices A, B, and C which listed the pressure of pipelines, mains and high pressure underground holders operating at or above 20% of SMYS. This information is now contained in drawing 086868, which will be issued by the Manager of Gas System Design Department and updated as required. A copy of drawing 086868 is attached.

Additional copies of this Standard Practice may be obtained from Gas Operations by calling extension 1604.

Copies of drawing 086868 may be obtained by calling extension 3202.

Lough hy

HOWARD M. MCKINLEY

JYura (2863) : cm

cc: Gas Operations Managers

Attachments

Exh.C(Becken) Supplement S.P. No. 463-8 Page 1 Effective 4/9/79

#### PROCEDURAL DETAILS

- \*10. Piping systems shown on Drawing 086868 are not to be operated in excess of the MOP (PG&E). This limitation has been determined by the lowest of the following:
  - a) The test pressure or the rated working pressure of the pipe, valves, and fittings in the line.

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- b) The MAOP of the line as established in accordance with the provisions of the current edition of G.O. 112.
- c) The MAOP of another pipeline system connected to the first system where there is no pressure control complete with over pressure protection between the two systems.
- d) Operating conditions that limit pressure.
- \*11. The MOP (PG&E) may equal, but shall never exceed the MAOP or the DP. In some cases where the MAOP is less than DP, it is anticipated that the MAOP may be increased at some future time, in accordance with Subpart K (Uprating) of the current edition of G.O. 112. For this reason, all new additions to an existing system shall have a design pressure at least equal to the design pressure listed in Drawing O86868. Some sections of an existing system may not qualify for the established design pressure and would require reconstruction, testing, or replacement prior to increasing the MAOP. See' Paragraph 6.
- 12. New or replacement sections of line should be tested and qualified for the ultimate MAOP of the system, even though the MOP (PG&E) of the system is limited by the MAOP of other facilities connected to it.
- 13. Any changes contemplated in the MOP (PG&E) or the MAOP of a line operating at or over 20% of SMYS shall be submitted by the Division Gas Superintendent or the Manager of Pipe Line Operations, in letter form, to the Manager of Gas System Design, for review and approval. A copy should be sent to the Manager of Gas System Planning.
- \*14. The MOP (PG&E), MAOP and DP of all newly installed pipelines and mains operating at or above 20% of SMYS, along with those in Drawing 086868 shall be confirmed annually by letter on or before February 1, by the Division Gas Superintendents and the Manager of Pipe Line Operations to the Manager of Gas System Design Department, for each facility within the scope of this Standard Practice.
- \*15. The Manager of Gas System Design Department will issue and distribute an updated copy of Drawing 086868 giving pipeline pressures (Drawing 086868) as required.

\*Paragraph Revised \*\*Paragraph Added

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		Exh. C (Becken)
7501 REV. 4-65		
acific Gas ai TANDARD	ND ELECTRIC COMPANY PRACTICE	STANDARD PRACTICE NO. 463-6
<ul> <li>DETERMENT COMPARY STANDARD PRACTICE STANDARD COMPARY STANDARD PRACTICE STANDARD FRACTICE NO</li></ul>		
SUING DEPAR	GAS SYSTEM DESIGN	REPLACING 1 EFFECTIVE 5/1/7
UBJECT: MAX OPE	IMUM OPERATING PRESSURES OF PIPELINES AND MAINS RATING AT OR ABOVE 20% OF S.M.Y.S.	
PURPOSE	AND POLICY	
*1.	To establish a uniform procedure for identifyin Design Pressure (DP), Maximum Allowable Operati Maximum Operating Pressure (MOP) (PG&E) for all holders operating at or above 20% of specified (SMYS) of the pipe material.	ng, reviewing and revising ng Pressures (MAOP), and pipelines, mains and minimum yield strength
RECISIO	NS	
2.	All previous instructions, oral or written, tha Standard Practice.	t may be contrary to this
RESPONS	IBILITY	
3.	Division Gas Superintendents and the Manager of shall be responsible for the performance requir Practice. Performance will include reviews of the lines and the records generated by the refe any time a change in MOP, MAOP, or DP is contemp	Pipe Line Operations ed by this Standard design procedures for erenced Standard Practices plated.
4.	The Manager of Gas System Design will establish MOP (PG&E), MAOP and DP.	and confirm changes to
REFEREN	CES	
*5	Drawing 086868 "Maximum Operating Pressures of Operating at or Above 20% of SMYS" Current edition of California Public Utilities S.P. 412-1, "External Corrosion Control of Buri S.P. 460-1, "Location Class Changes: Pipelines S.P. 460-2-2, "Physical Inspection: Pipelines, S.P. 460-21-4, "Periodic Leakage Surveys of Gas Distribution Facilities" S.P. 463.7, "Pipeline History File, Establishin	Pipelines and Mains G.O. 112 ed Gas Facilities" and Mains" Mains and Services" Transmission and g and Maintaining"
DEFINIT	IONS	
*6 <b>.</b>	Design Pressure (DP) is the maximum pressure per sections of the current edition of G.O. 112, ap and locations involved. In some cases the DP has the maximum pressure for the minimum wall thick	rmitted by the design plicable to the materials as been established as mess required under the

current edition of G.O. 112 for Type 3 construction for line size

listed (See double asterisk entries in Drawing 086868).

62.7501 REV. 4.65

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GAS OPERATIONS GAS SYSTEM DESIGN CAS SYSTEM DESIGN RATING PRESSURES OF PIPELINES T OR ABOVE 20% OF S.M.Y.S. esign Pressure is the Design P s to existing facilities, as s 086868. Allowable Operating Pressure ( pipeline or section of a pipel the applicable provisions of Operating Pressure (MOP) (PG&E stem may be operated as specifies sign Department. A Minimum Yield Strength (SMYS) pribed by the specification und facturer or as specified in Second of G.O. 112.	PAGE NO. 2 EFFECTIVE 4/9/79 REPLACING 2 EFFECTIVE 5/1/7 AND MAINS Pressure (DP) to be used for future shown on the latest revision of (MAOP) is the maximum pressure at line may be operated in accordance the current edition of G.O. 112. (MAOP) is the maximum pressure at which lied by the Manager of the Gas () is the minimum yield strength in der which pipe is purchased from oction 192.107 of the current da to this Standard Practice.
CAS SYSTEM DESIGN RATING PRESSURES OF PIPELINES T OR ABOVE 20% OF S.M.Y.S. esign Pressure is the Design P s to existing facilities, as s 086868. Allowable Operating Pressure ( pipeline or section of a pipel the applicable provisions of Operating Pressure (MOP) (PG&E stem may be operated as specifies ign Department. A Minimum Yield Strength (SMYS) pribed by the specification und facturer or as specified in Second 5. of G.O. 112.	PAGE NO. 2 EFFECTIVE 5/1/7         AND MAINS         Pressure (DP) to be used for future shown on the latest revision of         (MAOP) is the maximum pressure at the current edition of G.O. 112.         (MAOP) is the maximum pressure at the current edition of G.O. 112.         (MAOP) is the maximum pressure at which inder which pipe is purchased from the the current edition of G.O. 112.         (MAOP) is the maximum pressure at which inder which pipe is purchased from the the current edition of G.O. 112.         (MAOP) is the maximum pressure at which in the data to this Standard Practice.
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d Minimum Yield Strength (SMYS cribed by the specification un facturer or as specified in Sec of G.O. 112.	) is the minimum yield strength in der which pipe is purchased from action 192.107 of the current ada to this Standard Practice.
al details appear in the addend	da to this Standard Practice.
al details appear in the adden	da to this Standard Practice.
Recording Charts and Operating ich document the MAOP and/or M g at or above 20% of SMYS shal ipe Line Operations Department enance and operation of facili	g Sheets (record of hourly OP (PG&E) of pipelines and mains 1 be kept current by the Division assigned with the responsibility ty.
lement establishes the procedu: DP for each facility.	re for designating the MOP (PG&E),
ward M. McKinley Ice President - Gas Operations	
vision Managers vision Gas Superintendents strict Gas Superintendents strict Managers	Division Admin. Analyst or Equal Director, Procedures Analysis Pipe Line Operations
	plement establishes the procedu d DP for each facility. Howard M. McKinley Vice President - Gas Operations Division Managers Division Gas Superintendents District Gas Superintendents District Managers s of this Standard Practice may

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#### PURPOSE

This drawing lists the operating limitations and design requirements for all pipelines, mains and holders operating at or above 20% of the specified minimum yield strength (SMYS) of the pipe.

See S.P. 463-8 for detailed requirements for establishing and maintaining the MAOP of gas facilities.

#### DEFINITIONS

Maximum Allowable Operating Pressure (MAOP) is the maximum pressure at which a pipeline or section of a pipeline may be operated in accordance with all the applicable provisions of the current edition of G.O. 112-C.

Maximum Operating Pressure (MOP) (PG&E) is the maximum pressure at which a gas system may be operated as specified by the Manager of the Gas System Design Department.

Design Pressure (DP) is the maximum pressure permitted by the design sections of the current edition of G.O. 112-C, applicable to the materials and locations involved. In some cases, the DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of G.O. 112-C for Type 3 construction for line size listed (see double asterisk entries).

Future Design Pressure is the Design Pressure (DP) to be used for future additions to existing facilities.

#### CHANGES IN THE MAOP REQUIRE CPUC NOTIFICATION

General Order 112-C (Subpart C) requires the Company to notify the CPUC 30 days prior to the uprating of any system operating, or to be operated, at 20 percent SMYS or greater.

The CPUC must be advised within 30 days after the lowering of the MAOP of a line operating at 20 percent or more of SMYS.

Any changes contemplated in the MOP (PG&E) or the MAOP of a line operating at or over 20% of SMYS shall be submitted by the Division Gas Superintendent or the Manager of Pipe Line Operations, in letter form, to the Manager of Gas System Design, for review and approval.

										•
APPROV	VED BY	1								
HK.					··					
SKI .										
708	Phil						·		l	
	<b>\$1</b>	REV.	DATE		DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.
GM							B/M			
SUPV.					PTPELINE - DATA SHEET		DWG. L	IST		
DSGN.				MAOD	OF LINES OFFRATING AT AD OVER THE SHUE		SUPSD:	3		
DWN.				1.8 101	OF THEMAS OF DEGLERAD IT. THE OVER 208 SP10		SUPSD	BY		
CHKD.					TYPICAL		SHEET	NG. J.C	5130	<u>SHEETS</u>
0.K.			1							REV.
DATE		SCALE			PACIFIC GAS AND ELECTRIC COMPANY		- 08	6868		$\cap$
4/9/7	79				SAN FRANCISCO, CALIFORNIA					
62-180	A Po	v 7_7	Γ.				MICRO	FILM		

### MAOP INDEX

Sheets 3 - 23	Transmission Lines Operating at or Over 20% SMYS .
Sheets 24 - 29	Distribution Mains Operating at or Over 20% SMYS
Sheet 30	Pipe Type High Pressure Underground Holders Operating at or Over 20% SMYS

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	PG&FCO	DRAWING NUMBER	REV.
LINES OPERATING AT OR OVER 20% SMVS		00000	$\cap$
	SHEET 2 OF 30 SHEETS	080808	$\sim$
-1311 Pot 176		MICROFILM	

61

	Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
	21	0.00	1,07	Crockett Station to MP 1.07	24" & 26"	400	405	650	675
a de la compañía de l	21	1.07	1.52	MP 1.07 to Herrmann Station	24"	400	675	675	675
100,000	21	1.52	2.71	Herrmann Station to Reis Avenue	16"	250	258	575**	575**
	21	2.71	12.05	Reis Avenue to Napa "Y"	12"	250	375	585	585
	21	12.05	35,05	Napa "Y" to MP 35.05	12" & 26" ·	450	450	675	675
	21	35.05	51.41	MP 35.05 to MP 51.41	12"	· 450	500	720	675
a so the set	21	51.41	53.12	MP 51.41 to Santa Rosa Compressor Station	12"	450	494	720	675
	21	53.12	137.38	Santa Rosa Compressor Station to Willits	8" & 12"	820	820	890	890
	21	0.00	18.64	Napa "Y" to MP $18.64$	16"	450	500	720	675
	21	18.64	25.84	MP 18.64 to Pepper Road	16"	450	500	720	675
	21	34.84	35,86	McDowell Road Tap to Petaluma Meter Station	12"	450	500	593	675
	21	0.00	21.11	Adobe to San Rafael HPU Holder Station	16" & 20"	450	500	500	500
1989 Avera	21	0.00	21,11	Adobe to San Rafael HPU	12"	450	500	500	500
	*50	0.00	2.87	5th & Walnut Streets, Marysville to Yuba City HPU	8"	400	400	720**	720**
	*50	2.87	21.62	Yuba City HPU to Biggs Regulator Station	8"	250	250	720**	720**
P G 8	*50	21.62	26.94	Biggs Regulator Station to Richvale "Y"	6" & 8"	250	250	720**	720**
m l	*50	26.94	44.87	Richvale "Y" to Butte Station	6", 8", 12"	400	400	686**	720**
	50	0.00	7,81	MP 0.00 to Paradise	8"	400	720	720	720
ö	56			Pleasant Creek Field Storage Syste	em 4"	1300	1300	1300	1440

\*Indicates that line or sections of line are under 20% SMYS, but are listed for the purpose of continuity.

\*\*DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of General Order 112-C for Type construction for line size listed.

Note: Transmission line numbers which are underlined indicate changes by this revision of Standard Practice 463.8.

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LINES OPERATING

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OR OVER 20% SMYS

SHEET ω 0F **30 SHEETS** MICROFILM

086868

**DRAWING NUMBER** 

REV.

6]-	211400000000000000000000000000000000000						anna a ghu ann an Anna ann ann an Anna an Anna an Anna ann an Anna ann ann		ann an Air an	n an	an a
-43	Ŀ						<b>N</b>				
14	INJ		Trans			1	Dipe	PCCE			Buturo
Re	SE		T.ine				Figerer	FGQE		Decian	Fucure
V.	្អ	20.00	No.	MP	to MP	Description	(Inches)	psig	MAOP	Design	Design
	ÉR	1000		·			(110-10)	2019			<u></u>
76	AT		56			Pleasant Creek Field Storage					
	IN		•			System	4" & 8"	1300	1440	1440	1440
	r S Z		57			McDonald Island Field Storage					
	ĥ		_			System	4" - 12"	2160	2160	2160	2160
	0 <sub>R</sub>	報告報	57	0,00	7.47	McDonald Island Compressor Station	1				
	Ö				30 00	to PLS	14",16",18"	1025	1025	1025	1025
, i	VE		57	7.4/	16.64	PLS to Brentwood Terminal	18	867	867	867	867
	R		2/8	0.00	10,40	Brentwood Terminal to McDonald	2211	2160	2160	2160	2160
l.	205		65			$SP 3 (T176 7) \pm 0 \text{ Los Medanos}$	4.4	2100	2100	2100	2100
	07 70	102	05			Compressor Station	4"-6",10"	315	600	600	600
	SWIX		65			Los Medanos Field Storage System	4"	1000	1000	1000	1800
	ល		100	134.5	150.13	MP 134.5 to Milpitas Terminal	20"	400	400	552	552
			101	0.00	9.80	Milpitas Terminal to Rengstorff					
						Avenue Station	36"	400	400	400	400
			*101	9.80	33.68	Rengstorff Avenue Station Via					
					,	Bayshore to San Francisco					
						Border Meter Station	20"	180	180	275	400
	HS		*101	33.68	44.56	San Francisco Meter Station Via					
l	Ē					Bayshore Boulevard to Potrero	2017	7 09	110	275	275
		P	*103	0 00	23 55	Hollister Meter Station Regulator	20	100	LLU	275	275
	4	ດ		0.00	20.00	Station	12"	350	350	670**	500
	OF	ж т	103	23,55	26.63	California Street Regulator Stati	on				
	ω				_	To Harkins Road Meter and					
		ö				Mixer Station	12"	313	313	670**	500
	HE		; 105	6.88	23.03	Irvington Station to San Lorenzo	20", 24"				
	ETS					Regulator Station	26" & 34"	250	250	500	500
~										•	
	0	JRA									
ÕF	- B	3									
	86	G	•								
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LINES OPEF		Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter <u>(</u> Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
UAT		*105	23.03		52.01	San Lorenzo Regulator Station to	20". 22"				
INC	a di nangan					San Pablo Station	24" & 30"	150	198	275	275
42 197		*105	0.00		2.03	Oakland Holder Station to					
F1	11 Sec. 1					Berkeley City Limits (Parallel)	24"	150	198	275	275
0R		105	0,00		0.18	Baine Avenue Crossover to Line 153	20"	250	250	590	500
0		*105	0.00		0.185	West Winton Avenue Crossover to					
VE	1.11.00					Line 153	22" & 24"	250	250	500	500
20		105B	0.00		11.85	Crockett Station to San Pablo					
20		1.00				Station	24"	400	400	400	400
oP To		107	0.00		13.11	Tracy Station to Livermore					
SM	0.600	107	10 11		<b>01 00</b>	Junction	22"	500	500	500	720
SI	A STATE	TOY	±3.⊥⊥		31.22	Livermore Junction to Irvington	007			500	200
	1000	1070	27 22		20 12	Station Turington Chatien to Wilnites	22.	4//	480	500	/20
		1075	31.22		30.12	Invington Station to Milpitas	227 248 2 268	A	4-7-17	500	700
	1.00	108	0 00		1 50	Stannag 2 to Mornalic Diold	22",24" & 36"	4//	4//	500	720
		100	0.00		~• JJ	Mixing Station	164	500	500	720	200
		108	4 59		8.79	Vernalis Field Mixing Station to	10	500	500	720	090
		100	-1.00		0.10	McMullin Ranch Mixer Station	16"	408	408	720**	720**
Ĩ		108	8.79		16.7	McMullin Banch Mixer Station to	20	-100	-100	,20	, 20
						MP 16.7	16"	408	408	720**	720**
୮ <b>୮</b>   ୧	ວ	108	16.7		43.5	MP 16.7 to Las Vinas Station	16"	412	412	720**	720**
	Σ	108	43.5		62.20	Las Vinas Station to MP 62.20	16"	490	490	500	720
위	л Л	108	62.20		75.10	MP 62.20 to Sacramento Division					
$\frac{\omega}{\delta}$	n					Gas Load Center	16" & 24"	412	412	500	656
s (	o	*108	27.10		1.71	E. Hazleton & B Streets Regulator					
표						Station to Stockton Gas Plant	12"	175	185	275	275
E.	-	109	0.00		43.47	Milpitas Terminal to Sullivan					
						Avenue Regulator Station	22" & 30"	375	375	400	400

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CCO. DRAWING NUMBER DF 30 SHEETS 086868 MICROFILM

LINES OP EI	Trans Line <u>No.</u>	• <u>MP</u>	to	<u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
AT	*109	43_47		52.71	Sullivan Avenue Regulator to	•		•		
IN					Potrero Gas Plant	26"	150	150	275	275
6.) No	111	0.00		21.65	Helm Junction to Fresno Junction	12"	650	650	800	720
ΞŢ	111	21.65		28.05	Fresno Junction to Division Gas					
0					Load Center	8"	400	400	720	720
20	111				Raisin City Field Collection					
ENC.					System	4 "	650	800	800	800
R	. 111				San Joaquin Field Collection System	3" & 4"	650	800	960	960
N	112				Vernalis Fielã Collection System	3" - 8"	594	594	800	800
<del>8</del> 0	114	0.00		9.01	West Rio Vista Field to Antioch					
ß					Terminal	12" & 16"	510	510	800	800
YYM MY:	114	9.01		16.59	Antioch Terminal to Brentwood					
S					Terminal	22 <b>"</b>	595	595	595	720
	114	16,59		28,97	Brentwood Terminal to Dalton Avenue	22"	595	595	59 5	720
	, 114 <sup>·</sup>	28.97		33.85	Dalton Avenue to Livermore Junction	36"	595	595 <sup>(1)</sup>	595	720
	115				Petaluma Gas Field	2"	450	675	675	675
	*116	0.00		3.86	Davis Meter Station to Swingle					
					Junction	8"	500	500	500	800
0	*116	3.86		6.19	Swingle Junction to V-6.19	16"	500	800 (2)	800	800
<u>.</u>	*116	6.19		12.89	V-6.19 to Sacramento Gas Plant	8"	500	500	500	720
╗╎╖	*118	0.00		6.09	Division Gas Load Center to Fresno					
20					Junction	8"	400	400	500	720
_   œ	118	0,00		0.66	Division Gas Load Center to Fresno			•		
πIΠ					HPU Station	12"	690	690	720	720
2 0	*118	5,86		12.57	Fresno Junction to MP 12.57	12"	400	400	720	720
	*118	12,57		73.26	MP 12.57 to Livingston	· 8"	400	400	500	720
	118	0.00		38.39	Herndon to Athlone	12"	400	400	720	720

(1) When this section of 22" Line 114 was abandoned in 1977, the existing 36" section of Line 303 (which had a 600 psig MAOP) became Line 114.

(2) The 800 psig MAOP of this section of Line 116 was established by hydrostatic tests completed on 12/10/75.

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LINES

DRAWING NUMBER

REV.

					Nominal				
Trans.					Pipe	PCcF			73+++++++-
Line					Diameter	MOD			Future
No.	MP	to	MP	Description	(Inches)	psig	MAOP	Press.	Press.
118	73,26		74 89	Livingston to Collier Deel			*******	,	
118	74.89		83 74	Collier Dood to Dup Human	6"	400	720	720	720
·····			00.74	Pegulator Station					
118	80,68		83 74	MP 80 68 to Produme Dep 3	6"	400	400	400	720
			00,11	Regulator Station	<u></u>		(3)		
118	83 74		81 69		8"	400	720 (3)	720	720
	00.14		04.09	Bradbury Road Regulator Station to			0		
119	0 00		2 05	MP 64.69 (L-215 Tap) Parallel	6" & 8"	500	890	890	890
	0.00		5.05	Davis Meter Station to Swingle					
119	3 85		1 OE		12"	792	792	800	800
119	4 85		4.00	Mp 4 SE to Mp 11 14	12"	500	720	800	720
119	11 14		11 32	MP 4.05 to MP 11.14	12"	500	520	800	720
119	11 25		16 AG	MP 11.14 to MP 11.35	10"	500	520	800	720
119	0.00		10,40 10 17	MP 11.35 to N. Sacramento HPU	12"	500	520	800	720
~~~	0.00		10.11	N. Sacramento HPU to Antelope Meter					
119	0 00		Q /1		12"	500	500	500	600
	0.00		0.41	N. Sacramento HPU to Antelope Meter	<b>.</b>				
119	0 00		2 80		6" & 16"	500	500	500	600
119	4 6		55	N. Sacramento HPU to MP 2.80	24"	180	180	545	545
119	0.00		5 25	Sonome Avenue Regulator	12"	500	500	500	600
	0.00		7.20	Paso Bouleward to Pocoville					
				Regulator Station	<i>C</i> <b>B</b>	100			
120				Sutter Creek Field Collection Suctor	6" 4" = 6"	180	500	500	500
120				Sutter Buttes Field Collection	4° & O''	492	492	720	720
				System		405	405		
121	0.00		11.54	Marvsville Buttes Meter Station to	4° & 0°	485	485	720	720
	-			Yuba City HPH	64	405	405		
					0	400	485	720	720

(3) The 720 psig MAOP of this new parallel section of Line 118 was established by hydrostatic tests completed on 2/4/75.

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LINES

OPERATING

AT OR

OVER

20%

SMYS

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& E CO.

DRAWING NUMBER

LINES OPER	Trans. Line <u>No.</u>	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP <u>psig</u>	MAOP	Design Press.	Future Design Press.
ATT	123	0.00	13.57	Antelope Meter Station to Lincoln					·····
NG A	124	0.00	23.46	Junction Lincoln Junction to 5th & Walnut,	12"	500	500	670**	670**
H			_	Marysville	8"	400	400	720	600
R	124	0.00	26.03	Lincoln Junction to Yuba City HPU	16"	600	600	600	600
Q	124	0.00	3.76	Beale Air Force Base Tap (T 13.31)					000
VE				to MP 3.76	6"	400	400	720	600
R	125			Tompkins Hill Field Collection Syste	≥m 3",4",6"	448	448	720	720
20	126	0.00	10.57	Tompkins Hill Meter Station to	• • •		110	120	720
00				Union Street Regulator	4"	350	425	720	720
SN	126	0.00	10.89	Tompkins Hill Meter Station to			~~~~	720	720
INS				Union Street Regulator	6"	350	425	720	720
	126	0.00	3.62	Elk River Road Regulator to T 12.38		000	-160	720	720
				Line 126	, 10"	167	167	720	700
	*126	0.00	0.36	MP 0.00 to Eureka Propane	10"	167	167	720	720
	126	10.89	12.61	Union Street Regulator to Line 137	<u> </u>	167	167	720	720
	130A	0.00	0.50	HP Rio Vista Sacramento River	5	107	101	720	720
	ם חיד ד	0 00	0 50	Crossing	10"	800	800	800	800
Ŧ	1005	0.00	0.50	LP RIO Vista Sacramento River					
<b>m</b>	107	0.00	A 63	Crossing	10"	510	510	800	720
	101	0.00	0.71	E. Rio Vista Field	12"	510	685	800	720
	<u>т</u> эт	0.00	9.19	E. Rio Vista Field to Antioch 10 Terminal	)" & 12"	720(4) 510(5)	720	720	720
	131	9.19	10.47	Antioch Terminal to MP 10.47	24"	438	438	600	720
ωlo	131	10.47	16.87	MP 10.47 to Brentwood Terminal	24"	438	495	600	720
00	131	16.87	50.57	Brentwood Terminal to Irvington				000	720
HEET				Station	24"	500	525	600	650
DRAWING NUMBER	(4) <sub>The</sub> Coll (5) <sub>The</sub> Coll	MOP is lection : MOP is lection :	720 psig when System. 510 psig when System.	n this section of L-131 is operated i n this section of L-131 is operated i	in conjunctio In conjunctio	n with the	≥ HP Rio ≥ IP Rio	Vista Vista	

AT-1744 Row 1-76

LINES OPERATING AT OR OVER 20% SMYS

SHEET

8 0F

**30 SHEETS** 

MICROFILM

LINES OPER	Trans. Line <u>No.</u>	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ATI	131	50.57		57.45	Irvington Station to Milpitas Termin	nal 30"	590	595	650	650
N	132	0.00		35.84	Milpitas Terminal to MP 35.84	24",30",36"	400	400	400	400
5	132	35.84		46.59	MP 35.84 to Martin Station	30", 36"	390	390 (6)	400	400
Ĥ	132	46.59		51.50	Martin Station to Potrero Plant	24"	145	145	275	275
0 <del>1</del>	132	10.32		0.00,	Sierra Vista Avenue to Rengstorff					
õ				1.47	Avenue Station	16" & 24"	400	400	400	400
ŦΛ(	132	46.59		39.86	Martin Station to Geneva Avenue	20"	109	110	27.5	275
Ħ	133				Gill Ranch Field Collection System	4",6",8"	300	300	500	720
20	134	0`_00		21.57	Herndon Junction to MP 21.57	6" & 8"	400	500	720	720
<del>%</del>	134	21.57		27.04	MP 21.57 to Arbios Meter Station	6"	500	500	720	720
SM	134	27.04		30,50	Arbios Meter Station to MP 30.50	6" & 8"	500	500	720	720
SAI	134			34.13	Arbios Meter Station to Firebaugh					
					Regulator Station	3" & 4"	500	500	720	720
	136	0.00		2.64	Ord Bend Meter Station to MP 2.64	6"	479	565	720	720
	136	5.14		12.89	MP 5.14 to Butte Station	6"	550	550	720	720
	*137	0.00		11.83	Whipple and Albee Streets, Eureka					
					to MP 11.83	4" & 6"	167	167	720	720
	137	3.58		7.37	Ryan Slough Regulator Station to					
5]					Arcata	8"	350	350	720	720
	138A	0,00		14.94	Helm Tap Station to Helm Junction	16"	800 (7)	862	862	862
┦	138B	0.00		14.71	Helm Tap Station to Helm Junction	20"	700	- 700	800	890
ہ ا	138	14.71		22.04	Helm Junction to Elkhorn Station	18"	800(7)	865	865	890
	138	20,50		22.04	Elkhorn Station to Burrel Meter					
תןי	1				Station	18"	650	650	865	720
319	138	22.04		38.59	Burrel Meter Station to Adams &					
					Elm Meter and Regulator Station	16"	650	650	720**	720**

(6) Revised to conform to documented records.

(7) This section of L-138/L-138A has a 700 psig MOP when operating in conjunction with 20" L-138B.

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SHEET 9 OF 30 SHEETS 086868 MICROFILM

DRAWING NUMBER

C REV.

LINES	Tra	uns.				Nominal				
0	Lir	ne.				Pipe	PG&E			Future
PE	NO.	MP	to	MP	1 Description	Diameter	MOP		Design	Design
RA				<u> </u>		(Inches)	psig	MAOP	Press.	Press.
TING 2	138	38.59		49.42	Adams & Elm Meter Station to San Joaquin Division Gas Load					
NT O	138	43.58		50.02	Center T 43.58 to Chestnut & Clay	10",12" & 16"	650	650	720	720
R					Regulator Station	16 °	650	650	720	720
8	138	45.10		46.64	MP 45.10 to Peach Avenue	10"	650	720	720	720
ER	141E	6			Thornton Meter Station to E					720
20%	141w	7			Thornton Field Collection System Thornton Meter Station to W.	n 4" & 6"	538	538	800	800
SMY	*141				Thornton Field Collection System N.E.River Island & Walnut Grove	n 3" - 10"	768	768	800	800
ŝ					Field Collection System	6" & 8"	768	768	800	800
	1421	1 0.00		14.05	Bakersfield Tap to Bakersfield	•				
				<b>.</b>	Meter Station	12",16",20"	475	475	720	720
	1425	s 0,00		9,00	Gosford Road Meter Station to					
		0.00			Brundage Lane Regulator	6" & 10"	600	600	720	720
	*142	9.00		11,47	Brundage Lane Regulator to					
					Bakersfield Meter Station	8" & 12"	300	300	720	720
2	*143				Millar Field Collection System	3" & 4"	792	800	800	800
	144	0_00		3.50	Millar Meter Station to Millar					
	<b>0</b> 145				Fleid Maine Prairie Field Collection	10" & 12"	792	796	800	800
	2) A				System	3", 4", 6"	510	796	800	800
	<b>n</b> 146	0,00		6.00	Maine Prairie Meter Station to		240	,	000	000
					Maine Prairie Field	8"	510	796	800	800
$\tilde{s}$	<b>D</b> 147	0.00		3.39	Edgewood Road Crossover to San		0.0	,20	000	000
					Carlos Regulator Station	20" & 24"	400	400	400	400
	148	0.00		17.63	McMullin Ranch Mixer Station to			100	100	400
ן מ ו					Morgan Road Station	8"	408	408	720	720
	뭐 149				Winters Field Collection System	4" & 6"	750	750	800	800
086868	AWING NUMBER									

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4344 Rev 1	LINES OPEH		Trans. Line No.	MP	to	<u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP
-76	VA TI N		1.50	.0.00		18.09	Winters Meter Station to Davis		750	250
	IG AI		151	0.42		14.05	Afton Odorizer Station to Afton	6.1	750	750
ļ	OR		152	0.00		0.42	Afton Field to Afton Odorizer	6"	250	250
	OVEI		153	0.00		18.00	Station Irvington Station to Marina Boulevard	6" đ	250	250
	203 203		*153	18.00		27.89	Station Marina Boulevard Station to 2nd and	30",32",34"	420	420
	00 70			,			Market Streets	24" & 30"	246	246
	SM:		153				Tap to 50th Avenue Holder Station	16" & 20"	246	246
	SZ		153				Tap to Oakland Holder Station	20"	246	246
			153				Alvarado Crossover to Line 105	16"	246	250
			*153				Fairway Avenue Crossover to Line 105	20" & 30"	150	198
			155 156	0.00		5.72	Durham Field Collection System Durham Field to Durham Field Meter	4"	680	680
		a da serencia de la competitiva de la c	158	4.90		13.65	Station Dunnigan Hills Field to Dunnigan	6"	680	680
							Hills Meter & Regulator	6"	500	564
	Ĩ		*158		•		Woodland Field Collection System	3" & 4"	500	564
	Ē	ש	159	0.00		0.65	Pleasant Creek Compressor Station	A 11	975	975
	11 0	6 &	159	0.65		3.91	V 0.65 to Pleasant Creek Regulator		075	0.75
	F 3	m O	159	3.91		6.08	Station Pleasant Creek Regulator Station to	4"	975	975
		0					Winters Meter Station	4"	750	750
	HEETS		159				Winters Field Collection System	4"	750	750
MICROFILM	086868	DRAWING NUMBI								

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Future Design

Press.

500\*\*

500\*\*

Design

Press.

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LINES OPER	Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches) .	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ATI	*162	0,,00	•	7.73	Tracy Station to Banta Regulator					
NG	•				Station	. 6" & 8"	365	365	720	720
А	162	0.00		6.61	Tracy Station to Holly Road	10"	365	720	720	720
н	164				Coalinga Field Collection System	10" & 8"	498	498	865	890
0R	167	0.00		34,50	E. Beehive Bend Odorizer Station					
O.					to Yuba City HPU	· 12" & 16"	800	800	800	800
VER	167	0.00		4.60	Wild Goose Field Meter to Wild Goose Mixer & Odorizer					
20					Station (Parallel)	10"	800	800	800	800
%	167	4.60		6.54	Wild Goose Mixer to Gridley					
វីទ					Junction	8 <b>"</b>	800	800	800	800
INS	167				Wild Goose Collection System	3" & 4"	800	800	800	800
	167	4.12		7.60	Princeton Field Collection					
	4	,			System	3"	800	800	800	800
	167				Compton Landing Field Collection					
					System	4" & 6"	800	800	800	800
	167				Bounde Creek Field Collection					
					System	4"	800	800	800	800
S	168				River Island Field Collection					
<b>E</b>					System HP	4", 6", 8"	800 720 (8)	800	800	800
-	168				River Island Field Collection					
					System LP	3" - 8"	698	698	800	800
C F O	169				Beehive Bend, Willows, Llano Seco & Perkins Lake Field					
ျင်					Collection System	3" - 20"	800	800	800	800
E.	172	0,00		69.81	W. Beehive Bend Meter Station to					
				•	Swingle Junction	18" & 20"	800	800	800	800
Ś					-					
086868	OBAAWING (8) The The R	MOP of	Line	168 sh	all be 720 when operated in conjunc	ction with Lind	e 131.			

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LINES OF	Trans Line No.	S. MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press	Future Design Press.
ËR						<u>(Indico)</u>		11101	11000.	
ATIN	172	69.81		79.51	Swingle Junction to Sacramento Gas Plant	16"	500	520	720	720
GA	172	0,00		0,60	Crosstie Between Line 172 and Line 167	10"	800	800	800	800
RO J	172	75.45		9.68	Crosstie Between Line 172 and	10	500	500		500
r OVJ	*173	0.00		17.56	Line 119 Line 123 (V 6.51) to Aurburn	12"	500	520	720	720
ER .					Regulator Station	4" 6" 8"	500	. 500	720	. 720
20%	*174 176				Aurbuckle Field Collection System Roberts Island Field Collection	2" - 10"	800	800	800	800
SM	176	0 00		18 85	System Poherts Island Field to Wracy	2" - 8"	500	555	800	800
SA	<u> </u>	0.00		10.00	Station	6" & 8"	500	555	800	800
	177	0.00		0.87	Sacramento Avenue Junction to Grapeway Regulator Station	10"	819	819	960	960
	177	0.86		7.13	Grapeway Regulator to Butte Station	6" ≈ 10"	469	469	600	600
,	177	0.00		4.75	Fell Regulator & Odorizer to	364	010	010	0.00	000
SHE	177	4.75		29.09	Sacramento Avenue Junction to	το	819	819	960	960
	177	0.00		2.19	Corning N. Dome Station Tap 27.60 to Tap 29.87 Parallel	10"	819	819	960	960
	177	29 09		37 84	Section Near Corning N. Dome	6" & 8"	819	819	960	960
30 C		23.03		57.04	Compressor Station	12"	819	819	960	960
SHE .	177	37.84		163.04	Gerber Compressor Station to Cummings Creek PLS	12"	819	819	960	960
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LINES OPERATING AT OR OVER 20% SMYS

13 0F **30 SHEETS** MICROFILM

SHEET

	Tran	s.			Nominal Pipe	PG&E		_	 Future
	Line		<b>*</b> ~ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Description	Diameter	MOP		Design	Design
	NO.		CO <u>MP</u> .	Description	(Inches)	psig	MAOP	press.	Press.
	177	163.04	178.18	Cummings Creek PLS to Tompkins					
				Hill Meter & Regulator Sta.	12"	430	430	720	720
	177	178.18	192.29	Tompkins Hill Meter & Regulator					
				Station to Ryan Slough					
				Regulator Station	12 <sup>n</sup>	350	425	600	600
	177	37.8	149.18	Crosstie Between Lines 177 and				·	
				Line 400	12"	819	819	960	960
	177	43.87	1.24	Tap to Red Bluff and Diamond					
				National	6 "	819	819	960	960
	177			Rancho Capay Field Collection					
				System	4" <sup>'</sup>	819	819	960	960
	179			Corning Field Collection System	6"	819	819	960	960
	180.			Kettleman Hills Field Collection					
				System	8" - 20"	421	421	500	500
	181A	0.00	1.56	Soap Lake Meter Station to V 1.56	10"	300	300	400	400
	181A	6.19	20.15	V-6.19 to Watsonville Meter					
				Station	10" & 12"	300	303	400	400
	18lB	0.00	10.85	Anzar Road Meter and Regulator to					
				Watsonville Meter Station	10",16",20"	400	400	400	400
	*182	0.00	16.77	Serpa "Y" to V-81	4" - 12"	400	435	800	800
	182	16.77	18.23	V-81 to Shell Chemical Meter					
1				Station	4" - 12"	435	435	800	800
	*182	18,23	18.87	Shell Chemical Meter Station to					
				Suisun Junction Meter Station	12"	435	435	600	800
	182			Kirby Hills Field Collection					
				System	$3^{n} - 8^{n}$	435	435	800	800
	182			Suisun Field Collection System	2" - 6"	435	435	800	800

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LINES OPER	Trans Line No.	s. <u>MP</u>	to	<u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ATIN	1.83	0.00		6,35	Firebaugh Regulator Station to Moffat Field Meter Station	3 41	175	320	800	800
G AT	186	0.00		26.1	Dos Palos Meter Station to Red Top Regulator	3" 4" 6"	500	625	720	720
OR	186	26.1		29.4	Red Top Regulator Station to Chowchilla Field	2" 3" 4"	500	960	960	960
OVER	<u>187</u>	0.00		22,58	San Ardo Field Meter Station to Jolon Road Regulator Station	6"	313	313	720	720
20%	187	22.58		65.70	Jolon Road Regulator Station to Harkins Road Meter & Mixer	-			,	
SMY	189	0.00		1.72	Station Elk River Road Regulator Station	8"	313	313	720	720
ß	190	0.00		36.08	to Humboldt Bay P.P.	10"	350	425	720	720
	190	16.08		16.22	Coalinga Nose Storage Field to	12" & 16"	2160	2160	2160	2160
	101	10.00		2 06	Union Oil Company	16"	2160	2160	2160	2160
H	191	0.00		5,00	Town Meter Station	30" & 34"	315	600	600	600
EET   P	191	3 97		0 93	Tie MD 3 97 to MD 9 93 Wie Dittsburg	16"	315	600	600	600
5 G 0 8	101	0.07		25.20	Power Plant	20" & 24"	315	390	600	600
- G	*101	25.20		20.00	Regulator Station	16" 20" &24"	315	338	600	600
SHEE	~7AT	25.30		27.30	Station to Junction L-191	8" 10" & 12"	268	283	400	400
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 P G & E CO.
 DRAWING NUMBER

 SHEET 15 OF 30 SHEETS
 086868

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	Trans Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
	*101	20.26		20 76	Turnetica Tine 101 to 10 20 20	1.0.1			·	<del></del>
	*191	27.30		32,070	Junction Line 191 to MP 32.76	10"	268	270	400	400
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	52.10		33.03	MP 52.76 to Marcinez Meter and Deculator Station	1.01	269	260	400	400
	*1912				Tunction Line 191 to Ardilla and	10.	208	268	400	400
					Camino Pablo & Orinda Regulator	<b>-</b> ·				
Control of the local division of the local d					Station	- 3 H 6 H & 8 H	268	283	400	400
	*191B	0.00		1.53	Junction Line 191 to Reliez Valle	v	200	200		~00
2012				Ŧ	Road Regulator Station	8"	268	283	400	400
	193				Rice Creek Field Collection System	a 2" - 8"	819	960	960	960
100 million	193				Malton Field Collection System	4",6",8"	819	960	960	960
5	193				Kirkwood & Rice Creek Field					
10.0					North Collection System	6"	819	819	960	960
	194	0.00		4.39	McMullin Field Dehydrator Station					
1997 W					to California Ammonia Company	6"	437	437	960	960
12.000	194				McMullin Ranch Field Collection					
1. A. 10.2 M.					System	2" - 10"	437	437	800	800
12,000	195				Rio Vista Field Collection System		800			
59 <u>5</u> -96					(HP)	2" - 16"	720 (9)	800	800	800
	*195				Rio Vista Field Collection System					
					(LP)	$2^{n} - 16^{n}$	510	510	800	800
	196	0.00		13.45	Las Vinas Station to Isleton		· · · (9)			
ດ					Meter Station	8" & 12"	800 (*)	800	800	800
8	197A	0,25		21.41	Las Vinas Station to MP 21.41	10"	385	388	720	720
т	<u>197A</u>	21.41		31,23	MP 21.41 to MP 31.23	10" & 12"	320	720(10)	720	720
2	197A	31.23		39,57	MP 31.23 to MP 39.57	12"	320	320	720	720
2	197A	39.57		41.78	MP 39.57 to Calaveras Cement	8"	320	320	720	720

(9) The MOP of this section of line is 720 psig when it is operated in conjunction with L-131.

(10) After reviewing records and the requirements of Section 192.619 of G.O. 112-C, it has been determined that the 500 psig limitation of this section of L-197A did not exist, and the section of Line has an MAOP of 720 psig. The 720 psig MAOP of this section of L-197A was established by hydrostatic tests completed on 1/18/66 and 7/23/69.

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LINES OPERATING AT OR OVER 20% SMYS

SHEET 16 OF 30 SHEETS

MICROFILM

DRAWING NUMBER

086868

LINE OPER		Trans Line No.	5. <u>MP</u>	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ATT		197B	0,25		5,50	Las Vinas Station to MP 5 50	<u> </u>	205			
NG	d.	197B	21.47		31.24	$V_{21} 47 \pm 0 V_{31} 24$	011	305	200	720	720
Þ		197C	17.44		23.02	Tone Tap to MP 23 $02$	101	320	320	720	720
ħ		199				Bunker Field Collection System	34 - 01	300 700	720	720	720
OR	l.	200				W. Rio Vista Field Collection	3 - 6	192	/96	800	800
OVE		*200				System (HP) W. Rio Vista Field Collection	2" - 16"	<sub>800</sub> (9)	800	800	800
R N		200				System (LP)	2" - 16"	510	510	800	800
80%		200				W. Rio Vista Field Collection	0.00 7.00				
ល	8	200				Liberty Islands Field Collection	3" ~ 10"	400	510	800	800
SAP						System	4"	800 720 (9)	800	800	800
		200				Lindsay Slough Field Collection					
	Surger Sector					System	3" - 10"	<sub>800</sub> (9)	868	960	960
	2	201				Todhunters Lake Field Collection					
		202	0.00		23.72	System Grass Valley Tap to Regulator	2" - 12"	792	960	960	960
<u>s</u>						Station near Robin Avenue,					
		202				Grass Valley	6" & 8"	400	720	720	600
	, 2	203				Greens Lake Field Collection					
5 G		204				System Chonser Danch Dield Gellestein	4"	500	800	800	800
0 8		204				Cheney Ranch Field Collection	0.8	<b>F a a</b>			
ין יי	t	206			•	Diescant Creek Man to Diescant	3" & 4"	500	890	890	890
88		200				Creek Compresson Station	108	075	1440	7 4 4 0	
£ `		207				Conway Banch Field Collection	12*.	9/5	1440	. 1,440	1440
H						System	4", 6", 8"	800	1000	1000	1000
S						<b>A</b>	., ., .	000	1000	1000	1000
086868	NRAWING NUMB	(9) <sub>The</sub>	MOP of	this	section	of line is 720 psig when it is op	erated in conj	unction	with L-1	31.	
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LINE OPERATING AT OR OVER 20% SMYS SHEET

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**30 SHEETS** 

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MICROFILM

Line No.	<u>MP</u>	to	MP	Description	Diameter (Inches)	PG&E MOP <u>psig</u>	MAOP	Design Press.	Future Design Press.
208				Union Island Field to Lathrop					
				Dehydrator Station	12"	825	1000	1000	1000
209				Line 400 to Line 128 at Willows	<u>4</u> "	479	720	720	2000
210	0.00		1,40	Rio Vista "Y" to Creed Station	16"	737	900	720	720
210	1.40		25,98	Creed Station to Napa "Y"	16" & 18"	650	650	240	800
210	1.40		19.47	Creed Station to Cordelia Regulat	or A 3	raplace	= with 2	6 * (140)	1/20
210	10 47		05 60	Station	32"	650	<u>ر</u> 675	675	_ 675
210	19.4/		25.62	Cordelia Regulator to Napa "Y"	10" & 12"	650	650	_8 <del>00</del> -673	800
210	10.00		1.36	Rio Vista "Y" to Creed Station	10"	650	650	800	800
210	19.4/		32.11	Cordelia Regulator to Herrmann					
210	0.00			Station	24"	650	675	675	675
.210	0.00		3.7	V 27.67 to Exxon Oil Meter					
212				Station	18"	650	720	720	675
212	A AA			Tremont Field Collection System	4" & 6"	792	800	800	800
215	0.00		20,05	Oak Flat Road Meter to West					
				Avenue Regulator Station	1.2"	500	890	890	890
220	0.00		2.41	Rio Vista "Y" to Maine Prairie					
			•	Meter Station	16"	792	800	800	800
220	0.00	•	2.41	Rio Vista "Y" to Maine Prairie					
				Meter Station	10"	510	796	800	800
220	2.41		22.01	Maine Prairie Meter Station to					
				Davis Meter and Regulator					
				Station	8",10",12"	792	796	800	800
220	22.01		34.46	Davis Meter & Regulator to	•				
				Dunnigan Spreckels Regulator					
				Station	6" & 8" (	500	500	500	800

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LINES OPERATING AT OR OVER 20% SMYS

SHEET 18 OF 30 SHEETS

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DRAWING NUMBER 086868

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Trans Line No.	s. <u>MP</u>	to <u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press
300A	0,00	0.64	Colorado River to Topock					
			Compressor Station	30" & 34"	660	700	700	700
300A	0.64	40.87	Topock Compressor Station to					
			PLS 1A	34"	867	867	890	890
300A	40.87	103.72	PLS lA to PLS 2A	34"	815	815	815	815
300A	103.72	130.37	PLS 2A to PLS 2AX	34"	688	688	688	688
300A	130.37	159.33	PLS 2AX to Hinkley Compressor					
			Station	26" & 34"	573	573	573	573
300A	159.33	203.02	Hinkley Compressor Station to					
			PLS 3A	34"	861	861	890	890
300A	203.02	256.21	PLS 3A to PLS 4A	34"	803	817	817	817
300A	256.21	299.01	PLS 4A to PLS 5A	34"	736	757	757	757
300A	299.01	353.85	PLS 5A to Kettleman Compressor					
			Station	34"	66 <del>9</del>	688	688	688
300A	353.85	436.74	Kettleman Compressor Station to					
			PLS 6A	34"	840	840	890	890
300A	436.74	461.07	PLS 6A to Pacheco Pass PLS	34"	715	715	715	715
300A	461.07	490.65	Pacheco Pass PLS to PLS 7A Silver					
			Creek	34"	631	631	715	715
300A	490.65	502.34	PLS 7A to Milpitas Terminal Static	on 34"	558	558	676	676
300B	0.00	0.45	Colorado River to Topock Compresso	r				
			Station	34"	660	660	735	735
300B	0.45	40.49	Topock Compressor Station to PLS					
			lB	34"	867	867	894	894
300B	40.49	103,51	PLS 1B to PLS 2B	34"	815	821	821	821
300B	103.51	130,40	PLS 2B to PLS 2BX	34"	688	688	688	688
300B	130.40	161.02	PLS 2BX to Hinkley Compressor					
_			Station	34"	573	573	573	573

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LINES OPERATING AT OR OVER 20% SMYS

SHEET 19 OF 30 SHEETS

MICROFILM

DRAWING NUMBER 086868

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LINES OPE		Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ATI		300B	161.02		203.07	Hinkley Compressor Station to					
NO.						PLS 3B	34"	861	861	897	207
14		300B	203.07		256.64	PLS 3B to PLS 4B	34"	803	816	816	016
Ĥ		300B	256.64		299.00	PLS 4B to PLS 5B	34"	736	757	757	010
0R R		300B	299.00		354.02	PLS 5B to Kettleman Compressor Station	34 11	660	<i>(</i> )		/5/
OVEI		300B	354.02		436.85	Kettleman Compressor Station to	54	663	688	688	688 ·
		3008	436 85		461 09	PLS OB	34"	840	840	890	890
20%		300B	461.08		490,92	Pacheco Pass PLS to PLS 7B Silver	34"	715	715	715	715
SM		2005	400.00		- 	Creek	34"	631	631	715	715
SĂ		300B 301G	490.92 0.00		24.68	PLS /B to Milpitas Terminal Station Hollister Meter Station to Moss	n 34"	600	600 ( <sub>11</sub> )	669	669
	1000 C	301A	0.00		24.84	Landing Power Plant Hollister Meter Station to Moss	24" & 30"	500	500	500	500
		301B	0.00		14.02	Landing Power Plant Dolan Road Meter Station to	20"	396	396	500	500
ş		*301C	14.02		17.20	Hilltown Regulator Station Hilltown Regulator Station to	12"	408	408	600	500
IEET 20	PG	*301F	0.00		7.94	Harkins Road Meter and Mixer Station Espinosa Road to Marina Regulator	8" & 12"	313	313	500	500
	0				Station	16"	408	412	412	412	
뛰	m	*301E	0.00		1.02	Crosstie - Monterey #2 to Main 301	12"	408	408	500	500
30	6	301D	0100		1.72	Anzar Tap Station to Anzar Road	1.0.0				500
SHEE		301H	0.00		1.72	Anzar Tap Station to Anzar Road	10	500	500	500	500
ЗТ.						Meter & Regulator Station	16"	500	500	500	500
086868	ORAWING NUMBER	(11) <sub>R</sub> e	evised t	.o ci	onform t	o documented records.					

- 61-4344 RAV 1-76
- LINES OPERATING AT OR OVER 20% SMYS

MICROFILM

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LINES OP ER		Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Desing Press.	Future Design Press.
ATING A		302				Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk, Moon Bend & Buckeye Field					
ĥ	144					Collection System	2" - 20"	1000	1000	1000	1000
0R R		302	0.00		5,76	Buckeye Creek PLS to Hershey					
Q						Junction	· 20"	975	975	1000	975
VE		303	0.00		7_95	Antioch Terminal to Brentwood	· · · · · ·				
ຸ ສາ ສາ		202	7 05			Terminal	36"	720	720	720	720
203		303	/.95		11.97	Brentwood Terminal to Vasco Road	36"	725	793(11	a) $864$	864
- 00		303	11.97		20,43	Vasco Road to Dalton Avenue	36"	725	776 (11	~) 864 C)	864
MS		303	20.43		25,54	Dalton Avenue to Livermore Junctic	on 36"	725	864(++	<sup>C,</sup> 864	864
S S		303	25.54		36.56	Livermore Junction to Sheridan			(77	d)	
						Road PLS	36"	725	731 (	<sup>4</sup> 877	877
		303	36,56		42,86	Sheridan Road PLS to Irvington	36"	590	590	600	877
		304	0,00		11.29	Tracy Station to Lathrop Dehydrato	or				
						& Odorizer Station	12**	825	825	825	825
		304				Lathrop Field Collection System	3" - 12"	825	. 825	825	825
	12.400	306	0.00		43.3	Kettleman Compressor Station to					
S						Dry Creek PLS	20"	840	840	840	840
Ē		306	43.3		70,02	Dry Creek PLS to Morro Bay Power		<b>650</b>	650	0.40	040
-	Τ	207	0.00		20.20	Plant Consider Course Mater Chattien to	20"	650	650	840	840
21	ດ	307	0.00		10,30	Spreckels Sugar Meter Station to	0.8	500	500	015	200
0	0	207	10.05		16 00	Spreckels Sugar Regulator	8"	500	500	915	890
	m	307	12.05		10.92	Derrick Road Tap to Arbios	0"	500	000	015	000
30	0	<b>7 1</b>	0 00		<b></b>	Regulator Station	8	500	890	912	890
ts I	۱× ۱	ىلىلەت.	0.00		54.44	Main 300 (V 180.64A) to westend	108 - 108	700	200	000	00.0
Ē						Primary Regulator Station	10" & 12"	/00	700	960	890
ST		-									
		(lla)_	h - 702		1000 -5	this continue of a 202 was establis	-1 7. 1 1 7	بار تناسب			100.100
	RA	Т	ne /93	psig	MAOP OI	this Section of L-303 was establis	snea by nyaro	static te	est compte	ted on II	/23/00.
80	3	(715)									
68			he 776	psig	MAOP of	this Section of L-303 was establis	shed by hydro	static te	est comple	ted on 11	/26/66.
68											
	MB	(llc) <sub>m</sub>	he 864	psig	MAOP of	this new Section of I-303 was esta	blished by b	varostati	ic test co	moleted o	n 11/22/77
	고			20-3			were with the				
	<b>_</b>	(11d)		-			<b>_</b>		<b>_</b>		
	いき	(T	he 731	psig	MAOP of	this Section of L-303 was establis	shed by gas u	pgrating	on 9/28/7	8.	

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21 OF 30 SHEETS OB6868 MICROFILM

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LINES OPER		Trans Line No.	MP	to	<u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	I MAOP E	esign ress.	Future Design Press.
ATI		311	31.97		38.49	Parallel Section to MP 38,49	12"	700	810	960	890
ភ្		312	0.00		8.00	Line 300A (T 2/3.27) to Paloma Field Meter Station	8"	736	740	820	820
AT		313	0.00		34.4	Lucerne Valley Tap Meter Station	Ŭ			020	020
0R						to Permanente Company Meter	8" & lO"	573	573	720	720
80		314	0.00		24.19	Hinkley Compressor Station to	101	061	967	000	08.0
Έł			04 10		~~ ~~	MP 24.19	12"	201	202	890	890
Ň		*314	24.19		29.00	MP 24.10 to MP 29.00	TO	293	293	/20	/20
\$0	No.	*314	29,00		43.18	MP 29.00 to Black Mountain Meter		20.2	202	720	720
70					•	and Regulator Station	0" & 10"	293	293	720	720
Š		*314				Tap to Riverside Cement	0" 0"	293	293	720	720
S	100	*314				Tap to Airbase Road Meter Station	8"	293	293	720	720
	Sector Sec	*310				Dutch Slough & River Break Field	21 _ 121	800	800	800	800
	<b>外</b> 所 241	217				Correction System Chickshominy Field Collection	2 77.	800	800	800	800
		211				System	3"	975	975	975	975
		318				Black Butte Field Collection	. –				
		510				System	3"	911	911.	960	960
		331				Santa Nella Tap to Tri Valley					
E						Growers	4"& 6"	500	890	890	890
۳J	Ê	334				Poppy Ridge Field	A 17	412	490(12)	800	800
N	P	336				Harte Field Collection System	3"	412	800	800	800
N	63	372	0.00		3.7	Ridgecrest Tap to Ridgecrest					
읚	ž		0.00		~ • • •	Primary Regulator	6"	700	700	960	960
ω	$\sim$	400	0.00		24.60	California-Oregon Border to					
	ö					Tionesta Compressor Station	36"	911	911	911	911
HEETS 086868 .	DRAWING NUMBE	(12) <sub>1</sub>	ine 334	is ;	a new li:	ne. The 490 psig MAOP was establis	hed by hydro	ostatic t	ests comple	ted on 3	/27/78.

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SHEET 22 OF 30 SHEETS

MICROFILM

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LI										
NES		Trans	5.			Nominal Pipe	PG&E			Future
g		Line				Diameter	MOP		Design	Design
PEJ	ALC: NO.	NO.	MP	to ME	Description	(Inches)	psig	MAOP	Press.	Press.
RAJ				<del></del>					******************	<u> </u>
Ę	1.1	400	24.60	48.0	54 Tionesta Compressor Station t	0			-	
ភី					Indian Springs PLS	36"	911	911	911	911
ΑJ	i.	400	48.64	82.3	33 Indian Springs PLS to Burney	,				
-					Compressor Station	36"	911	911	911	911
R		400	82.33	104.2	20 Burney Compressor Station to					
9					MP 104.20	36"	911	911	911	911
ΈE		400	104.20	115.2	MP 104.20 to Shingletown PLS	36"	911	915	942	942
~		400	115.26	149.	18 Shingletown PLS to Gerber					
203					Compressor Station	26" & 36"	911	911	911	911
099 TO		400	149.18	180.	77 Gerber Compressor Station to					
SM					V-180.77	24" & 36"	911	911	911	911
S		400A	180.77	197.	33 V 180.77 to Delevan Compress	or				
					Station	36"	911	911	911	911
		400B	180.76	197.	72 MP 180.76 to Delevan Compress	sor				
					Station	36 "	911	911	911	911
		400	197.72	233.	37 Delevan Compressor Station to	o				
					Buckeye Creek PLS	36"	1040	1040	1040	1040
		400	233.87	298.	B7 Buckeye Creek PLS to Antioch					
S I	-				Terminal	26" & 36"	975	975	975	975
폾		402	0.00	9_9	96 Redding-Calaveras Tap to PLS	12"	300	300	865	865
피니		402	9,96	38.	10 PLS to Calaveras Cement Tap	8",10" & 12"	300	300	720	720
2	3	403	0.00	1.	38 Rio Vista "Y" to Creed		(12)			
	20				Station	16"	650 (13)	800	855	800
뛰	Π									
3	o 📘									
	Ó 📔									

(13) The MOP of L-403 is 650 when operated in conjunction with L-210.

\*Indicates that line or sections of line are under 20% SMYS, but are listed for the purpose of continuity.

\*\*DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of General Order 112-C for Type 3 construction for line size listed.

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LINES OP	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
ERA	COAST VALLEYS DIVISION					
TING AT OR OV	Monterey #1 - Harkins Road Meter & Mixer Station to Fig-Frank Streets Regulator Station Monterey #2 - Fort Ord to Fig-Frank Streets Regulator Station Monterey (V-18.65 to Carmel V-2.13) Aquajito Road Regulator Station	8" & 12" 10" 12" 16" 8" & 10"	313 313 313	313 313 313	500 400 500	400 400 400
ER	Harkins Road Meter and Mixer Station to MP 2.45	8" & 10" 8"	313 313	313 313	500 500	500 500
20% SMYS	MP 2.45 to MP 3.50 MP 3.50 to California Street Regulator Station Salinas Main - Foster Road to San Miguel Avenue DFM-6 Espinosa Road Main from 301-B, V-3.18 DFM-7 Union Carbide Main from 187, MP 17.42 DFM-8 Paradise Road to Meridian Road Main	8" 8" 6" 3" 4" & 6"	313 313 408 313 500	313 313 500 313 500	500 500 500 720 720 720	500 500 500 500 870 500
P SHEET 2	COLGATE DIVISION Yuba City HPU Holder to Market Street Regulator Pit Tap to Schohr Ranch	6" & 8" 6" 4"	135 250	135 250	400 720	400 720
G & E CO. 24 OF 30 SHEETS	Tap to Strain Ranch Dryer <u>DE SABLA DIVISION</u> Butte College Tap Orland Tap from L-177 to Second Stage Regulator	3" & 4" 6"	400 490	720 490	720 720	720 720
089898 089898						
$\bigcirc$			<b>Leven sector (</b>	an an farming and a track many dama and an and a star		ny taalaan 1999 taalaa ah a

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SHEET24 OF 30 SHEETS ר ה א ה ç

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP <u>psig</u>	MAOP	Design Press.	Futur Desig Press
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Dower Station Feeder	04 - 104	215	220	<i>c</i> ~ ~	<b>~^</b>
Lion Oil Company Freder	0"& 12" 10#	315	330	600	600
Nichols Road Tan	12 <sup>1</sup>	215	330	600	600
Pacific States Steel Feeder	ייכו	420	330	500	500
Warm Springs Feeder	2H C AU	420	420	500	500
Port Costa Feeder	2 0 <del>1</del> 6"	315	338	500	600
50th Avenue Holder Feeder Off Line 105	16" ຂັ20"	150	198	275	275
Pittsburg Town Feeder	12"	315	338	350	600
Concord Feeder to Alpha Beta Regulator	6" & 8"	315	600	600	600
Oleum Steam Plant Tap	8" 10" 12" 16"	250	250	275	275
San Ramon Feeder	16"	500	500	500	600
Standard Oil Feeder	22"	400	400	400	400
Rodeo Feeder	6" & 8"	204	204	400	400
Concord Feeder	8" 10" 12"	170	170	600	600
Antioch Feeder	6"	315	600	720	720
Danville Feeder	6" 8" 10"	315	338	600	600
Discovery Bay Feeder - From Line 57A to Secondary					
Stage Regulator (Bixler Road)	3" & 4"	867	867	867	867
Discovery Bay Feeder - From Bixler Road Regulator					
to Pt. of Timber Regulator	4" 6" 8"	400	400	400	400
Atlas Road Feeder	8"	400	400	400	400

Exh. C (Becken)

Location NORTH BAY DIVISION	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter Station	8"	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator Station	10"	450	500	675	675
Kilburn Regulator Station to Rutherford	8" & 10"	450	500	675	675
6" Sonoma Tap Line	6"	450	500	675	675
Tap to Kaiser Steel East of Napa River	4"	450	500	675	675
Line 21-S, V-4.59 to V-4.63	8"	450	500	500	500
16" L-108 to Galt Primary Regulator Sacramento Division Cas Load Center to North Sacrament	4 <b>"</b>	490	490	500	720
Holder	8" & 12"	260	260	275	275
16" L-108 Tap to Sacramento Boulevard Regulator	10",12",16"	412	412	500	656
I-108 to Florin Road Primary	6" & 10"	412	412	500	656
Union Carbide Tap to Union Carbide Corp.	8" & 10"	412	412	500	656
L-108 to Florin Road and Woodline Avenue	6 "	412	412	500	656
Sutterville Road to 43rd and Riverside	6" & 8"	412	412	500	656
L-108 to Elk Grove Primary	4"	412	412	500	656
Tremont Tap to Dixon Meter Station	6 <b>"</b>	750	750	800	800
Hunts Feeder Main	6"	500	500	500	800
Fairfield - Knolls Feeder	4"	500	500	500	800
Illinois Street 10" Feeder	6" & 10"	650	675	740	720
Gibson Feeder Main	· 6"	500	500	500	800

(14)A number of DFMs have been added by Sacramento Division because of operation at pressure of 20% or more of SMYS.

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LINES OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Fut Des Pre
Sacramento Division (Continued)					
American Home Foods Feeder	2" & 4"	720	720	720	72
Vacaville Feeder	6"	400	400	400	40
Vacaville - Eldridge to Nut Tree Road	6"	400	400	720	72
Vacaville - Travis to Vacaville Junction	3", 4", 6"	400	400	400	40
Vacaville - SNRR to Elmira Road	3" & 6"	400	400	400	72
Anheuser Busch Feeder	2" & 4"	650	650	720	72
Fairfield Feeder - Scandia Road - Vaca Tap	10"	675	675	675	67
Fairfield Feeder - Scandia Road - Vaca Tap	12"	650	650	740	74
Robben Road Feeder - Dixon	6"	750	750	800	80
SAN FRANCTSCO DIVISION					
Peninsula Main	16" & 20"	109	110( <sup>14a</sup>	) 275	2
Hunters Point Power Plant Feeder	20"	145	145	275	27
SAN JOAQUIN DIVISION					
Tranquility Feeder	3 "	650	800	900	90
Yosemite Avenue Feeder	6"	400	720	720	7:
Snelling Highway Feeder	6"	400	400	400	7:
Dixon Dryer Feeder	4"	500	500	720	7:
Peach and Central Feeder	6"	650	720	720	7:
Clovis Feeder Main	6" & 12"	650	650	720	7:
Vinewood Avenue Reeder	4"	400	720	720	7:

(14a) Revised to conform to documented records.

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LINES OPERATING AT OR OVER 20% SMYS

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Nominal Pipe PG&E Future Diameter MOP Design Design Location (Inches) psig MAOP Press. Press. San Joaquin Division (Continued) Winton Avenue Feeder 6" 400 720 720 720 Elm Avenue Feeder 8" 263 263 400 400 US Borax Feeder 4" & 6" 490 490 720 720 Cressey Way Feeder 4" & 6" 400 400 720 720 Valley Nitrogen Feeder 6" 650 650 800 720 Ashland Avenue Feeder 4" & 6" 400 593 720 720 SAN JOSE DIVISION Half Moon Bay Feeder Line 8" 10" 12" 400 577 577\*\* 577\*\* Santa Cruz to Davenport 10" & 12" 300 303 557\*\* 400 Milpitas Terminal to PLS #7, Kings Road, 20" Feeder 16" 20" 30" 200 200 275 526 Watsonville to River Street Regulator Station 8" & 10" 300 303 577\*\* 400 Watsonville to Rob Roy Junction 10" 300 400 577\*\* 400 SHASTA DIVISION Simpson Lee Paper Mill Feeder 6" 300 300 720 720 U. S. Plywood Plant Feeder 4 m 300 720 720 720 Enterprise Town Feeder 4" & 6" 300 300 720 720 Calaveras Cement Company Feeder 8" 300 300 720 720 Red Bluff District Tap 2" 911 911 911 911

Exh. C (Becken)

\*\*See Paragraph 6

LINES

OP ERATING

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DRAWING NUMBER

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
STOCKTON DIVISION (15)					
Valley Tomato Trunk Line	8"	412	500	720	720
Eight Mile Road Trunk Line	4" & 8"	412	412(16)	720	720
Ripon-Modesto Feeder (Parallel)	8" & 12"	408	408	720	720
Dale Road to North Avenue Feeder	4", 6", 8", 12"	408	408	720	720
Riverbank Feeder	8" & 10"	408	408 <sup>(16)</sup>	720	720
Carpenter Road Feeder (Modesto)	4" & 12"	408	500	720	720
Modesto Feeder Via Pauline Boulevard	4"& 6"	408	408	720	720
Turner Road Feeder	81	300	720	720	720
Turner Road Feeder (Parallel)	4" & 6"	300	300	720	400
McArthur Road Feeder	4"	295	295	400	400
Louise Avenue Feeder	8"	408	408	720	720

(15) A number of DFMs have been deleted by Stockton Division because of operation at pressures less than 20% of SMYS.

(16) Revised to conform to documented records.

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LINES OPERATING AT

REV.

Location	Length (Feet)	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
COLGATE DIVISION				,- <u></u>		
Yuba City	24,784	34 <b>"</b>	525	525	550	550
NORTH BAY						
San Rafael	37,392	30"	625 (18)	650	690	690
SACRAMENTO DIVISION						
Sacramento	78,452	34"	445	445	550	550
SAN JOAQUIN DIVISION						
Fresno	43,722	30"	650 <sup>(18)</sup>	690	690	690
SAN JOSE DIVISION						
Santa Cruz	7,221	30"	618	618 <sup>(19)</sup>	618	660
· · ·	4,838	34"	618	618 <sup>(19)</sup>	618	660

(18) The MOP is lowered pending a hydrotest to confirm MAOP.

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(19) Revised to conform to documented records.

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Attachment C

## **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)

## **DECLARATION OF JAMES R. GRINSTEAD**

I, JAMES R. GRINSTEAD, do declare:

- I am currently the Vice-President of Grinstead and Associates, Inc., a management consulting firm. Pacific Gas and Electric Company ("PG&E") has retained my services as an engineering management consultant to work on various projects. I am a California Registered Professional Mechanical Engineer and my registration number is M-18054. I have personal knowledge of the following facts and, if called as a witness, would testify thereto.
- I was previously employed by PG&E from July 1973 to mid-1998. During that time, I worked in various gas engineering positions within PG&E's gas transmission and distribution organization, as well as PG&E's subsidiary, Pacific Gas Transmission Company.
- 3. From approximately March 1975 to mid-1976, I worked as a gas engineer in the Codes and Standards Section of the Gas System Design Department. The Codes and Standards Section was responsible for ensuring PG&E's compliance with relevant state and federal regulations regarding gas transmission facilities. The Supervising Engineer for whom I worked was Phillip Lathrap.

- 4. In my position as a gas engineer in the Codes and Standards Section, one of my primary roles was to assume the responsibilities previously assigned to my predecessor, Steven H. Phillips, of verifying and recording the Maximum Allowable Operating Pressures ("MAOPs") for all of PG&E's natural gas transmission pipelines operating at or above 20% specified minimum yield strength ("SMYS") in service at that time ("Transmission Pipelines"). During this time, I also worked on drafting PG&E's gas standards to clarify and communicate federal and state pipeline regulations. I further worked with the California Public Utilities Commission's ("CPUC") Safety Branch engineers in accompanying those engineers to witness transmission pipeline upratings and hydro-tests to establish new MAOPs.
- 5. In assuming Mr. Phillips' role of verifying and recording the MAOPs for Transmission Pipelines, my responsibility was to maintain the MAOP records previously compiled by Mr. Phillips, as well as to update these records in order to incorporate additional data as it was developed.
- 6. In maintaining and updating the MAOP records, I reviewed and relied upon data developed in conjunction with gas engineers throughout PG&E's gas department.
- 7. My objective in reviewing this data was to collect, verify and distribute information related to MAOPs, Maximum Operating Pressures ("MOPs") and Design Pressures ("DP"). My responsibilities in maintaining the records of MAOPs, MOPs and design pressures consisted of 1) regular verbal and written communications with engineers with design and/or operations responsibilities throughout PG&E's gas department and 2) technical peer review of existing and new information developed in conjunction with gas engineers to confirm the validity of data, including analyzing new information and discussing supporting records in the possession of the design and/or operations engineers. In instances where I discovered changes in MAOP or MOP

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data that I was unable to adequately validate, I would investigate and resolve these issues by reviewing records and further discussing individual conclusions with the appropriate source engineers.

- 8. As part of this effort and using the information previously compiled by Mr. Phillips, I also documented and recorded the MAOP Records into PG&E's Standard Practice 463-8, as Appendix A, "Lines in Transmission Capitol Operating at or over 20% SMYS," and Appendix B, "Distribution Mains Operating at Over 20% SMYS." PG&E's Standard Practice 463-8 provided policies and procedures for MAOP and related pressure limits. From April 1975 to mid-1976, I updated Appendices A and B to Standard Practice 463-8 to include the most up-to-date data on the MOP, MAOP and DP for all of PG&E's numbered transmission pipelines and Distribution Feeder Mains operating at or above 20% SMYS in service at that time. Appendices A and B were continuously updated and periodically published both prior to and following my holding the gas engineer position in the Codes and Standards Section. I prepared the version of Standard Practice 463-8 that went into effect on May 1, 1975, replacing the version issued on June 1, 1973. This version of Standard Practice 463-8 was sent to PG&E's Division Managers, Gas Operations Managers, Gas Construction Manager, Pipeline Operations Manager, Division Gas Superintendents, District Managers, District Gas Superintendents, Division Administrative Analysts, and Director of Procedures and Organization on April 15, 1975. Attached hereto as Exhibit A is a true and correct copy of Standard Practice 463-8, including Appendices A and B thereto, effective May 1, 1975.
- 9. I can affirm that PG&E properly verified, recorded and maintained the MAOP values for all Transmission Pipelines. I oversaw this process on behalf of PG&E by collecting data from design and operations engineers, reviewing records and

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operating histories, and resolving quality issues. I can further attest that this effort met California's requirements for establishing MAOPs pursuant to CPUC GO 112-C.

I declare under penalty of perjury under the laws of the State of California and the United States of America that the foregoing is true and correct.

Executed this 14<sup>h</sup> day of March 2011, at Walnut Creek, California.

/s/ JAMES R. GRINSTEAD + 62.6218 (REV 9.70)

# PG™E

FOR INTRA - COMPANY USES

DIVISION OR DEPARTMENT FILE NO SUBJECT VICE PRESIDENT - GAS OPERATIONS 463 RE LETTER OP SUBJECT Standard Practice No. 463-8 MAOP of Pipelines and Mains Operating At or Above 20% of SMYS

## April 15, 1975

DIVISION MANAGERS GAS OPERATIONS MANAGERS MANAGER, GAS CONSTRUCTION MANAGER, PIPE LINE OPERATIONS DIVISION GAS SUPERINTENDENTS DISTRICT MANAGERS DISTRICT GAS SUPERINTENDENTS DIVISION ADMINISTRATIVE ANALYST OR EQUAL DIRECTOR, PROCEDURES AND ORGANIZATION

The attached copy of Standard Practice No. 463-8, -including the Supplement-Procedural Details and Appendices A, B, and C, dated May 1, 1975, replaces Standard Practice No. 463-8 and Supplement-Procedural Details dated June 1, 1973, and Appendices A, B, and C dated March 1, 1975.

Additional copies of this standard practice may be obtained from Gas Operations by calling Extension 1604.

SIBLEY

JRGrinstead:sm

Attachment

Exh. A (Grinstead)

62.7501	REV.	4.65

#### PACIFIC GAS AND ELECTRIC COMPANY STANDARD PRACTICE

EXECUTIVE OFFICE OR DIVISION \_\_

ISSUING DEPARTMENT\_

	STANDARD PRACTICE NO. 463-8
··· ,	PAGE NO1EFFECTIVE_5/1/75
<u>_</u> _	REPLACING 1 EFFECTIVE 6/1/73

SUBJECT: MAXIMUM OPERATING PRESSURES OF PIPELINES AND MAINS OPERATING AT OR ABOVE 20% OF S.M.Y.S.

GAS OPERATIONS

GAS SYSTEM DESIGN

#### PURPOSE AND POLICY

\*1. To establish a uniform procedure for identifying, reviewing and revising Design Pressure (DP), Maximum Allowable Operating Pressures (MAOP), and Maximum Operating Pressure (MOP) (PG&E) for all pipelines, mains and holders operating at or above 20% of specified minimum yield strength (SMYS) of the pipe material (See Appendixes A, B and C).

#### RECISIONS

2. All previous instructions, oral or written, that may be contrary to this Standard Practice.

#### RESPONSIBILITY

- 3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.
- 4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

#### REFERENCES

\*5. Current edition of California Public Utilities G.O. 112 S.P. 412-1, "External Corrosion Control of Buried Gas Facilities" S.P. 460-1, "Location Class Changes: Pipelines and Mains" S.P. 460.2-2, "Physical Inspection: Pipelines, Mains and Services" S.P. 460-21-4, "Periodic Leakage Surveys of Gas Transmission and Distribution Facilities" S.P. 463.7, "Pipeline History File, Establishing and Maintaining"

#### DEFINITIONS

\*6. <u>Design Pressure (DP)</u> is the maximum pressure permitted by the design sections of the current edition of G.O. 112, applicable to the materials and locations involved. In some cases the DP has been established as the maximum pressure for the minimum wall thickness required under the current edition of G.O. 112 for Type 3 construction for line size listed (See double asterisk entries in Appendix A).

Future Design Pressure is the Design Pressure (DP) to be used for future additions to existing facilities, effective March 1, 1975.

TANDAR	S AND ELECTRIC COMPANY D PRACTICE	standard practice no. 463-8
. v. xecutive o	OFFICE OR DIVISION GAS OPERATIONS	page no. <u>2</u> effective $5/1/75$
SUING DEI	PARTMENT GAS_SYSTEM_DESIGN	REPLACING PAGE NO. 2 EFFECTIVE 6/1/73
SUBJECT:	MAXIMUM OPERATING PRESSURES OF PIPELINES AND M OPERATING AT OR ABOVE 20% OF S.M.Y.S.	AINS .
DEFINI	TIONS	
. د	Maximum Allowable Operating Pressure (MAOP) is a pipeline or section of a pipeline may be oper the applicable provisions of the current edition	the maximum pressure at which rated in accordance with all. on of G.O. 112.
:•	Maximum Operating Pressure (MOP) (PG&E) is the gas system may be operated as specified by the Design Department.	maximum pressure at which a Manager of the Gas System
	Specified Minimum Yield Strength (SMYS) is the psi prescribed by the specification under which manufacturer or as specified in Section 192.10 G.O. 112.	minimum yield strength in n pipe is purchased from the 7 of the current edition of
APPLIC	ATION	
*7.	Procedural details and supplemental data appear Practice.	in addenda to this Standard
	Supplement - Procedural Details Appendix A - Lines in Transmission Capital Oper Appendix B - Distribution Mains Operating at or Appendix C - Pipe Type Underground Holders Oper	ating at or over 20% of SMYS above 20% of SMYS ating at or above 20% of SMYS
RECORD		۹ •
8.	Pressure Recording Charts and Operating Sheets document the MAOP and/or MOP (PG&E) of pipeline above 20% of SMYS shall be kept current by the Operations Department assigned with the response operation of facility.	(record of hourly data) which as and mains operating at or Division and/or Pipe Line dibility of maintenance and
SUPPLEN	MENT	
9 <b>.</b>	The Supplement establishes the procedure for de MAOP and DP for each facility.	signating the MOP (PG&E),
APPROVE	Vice President - Gas Operations	· ·
DISTRIE	BUTION: Division Managers Divis Division Gas Superintendents Direc	ion Admin. Analyst or Equal tor, Procedures Analysis
	District Gas Superintendents Fibe	Line Operations

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Exh. A (Grinstead)

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Supplement S.P. 463-3 Page 1 Effective 5/1/75

#### PROCEDURAL DETAILS

- \*10. Piping systems listed are not to be operated in excess of the MOP (PG&E). This limitation has been determined by the lowest of the following:
  - a) The test pressure or the rated working pressure of the pipe, valves, and fittings in the line.
  - b) The MAOP of the line as established in accordance with the provisions of the current edition of G.O. 112.
  - c) The MAOP of another pipeline system connected to the first system where there is no pressure control complete with over pressure protection between the two systems.
  - d) Operating conditions that limit pressure.
- \*11. The MOP (PG&E) may equal, but shall never exceed the MAOP or the DP. In some cases where the MAOP is less than DP, it is anticipated that the MOAP may be increased at some future time, in accordance with Subpart K (Uprating) of the current edition of G.O. 112. For this reason, all new additions to an existing system shall have a design pressure at least equal to the design pressure listed in Appendixes A, B and C. Some sections of an existing system may not qualify for the established design pressure and would require reconstruction, testing, or replacement prior to increasing the MAOP. See paragraph 6.
- , 12. New or replacement sections of line should be tested and qualified for the ultimate MAOP of the system, even though the MOP (PG&E) of the system is limited by the MAOP of other facilities connected to it.
- \*13. Any changes contemplated in the MOP (PG&E) or the MAOP of a line operating at or over 20% of SMYS shall be submitted by the Division Gas Superintendent or the Manager of Pipe Line Operations, in letter form, to the Manager of Gas System Design, for review and approval. A copy should be sent to the Manager of Gas System Planning.
- \*14. The MOP (PG&E), MAOP and DP of all newly installed pipelines and mains operating at or above 20% of SMYS, along with those in Appendixes A, B and C shall be confirmed annually by letter on or before February 1, by the Division Gas Superintendents and the Manager of Pipe Line Operations to the Manager of Gas System Design Department, for each facility within the scope of this Standard Practice.
- \*15. The Manager of Gas System Design Department will publish and distribute updated lists of pipeline pressures (Appendixes A, B and C) as required.

Attachment: Appendix A - "Lines in Transmission Capital Operating at or over 20% of SMYS" Appendix B - "Distribution Mains Operating at or above 20% of SMYS" Appendix C - "Pipe Type Underground Holders Operating at or above 20% of SMYS"

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\* Paragraph Revised \*\* Paragraph Added

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## LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

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Trans. Pipe PG&E Fu   Line No. Location Diameter MOP Design De   No. Location (Inches) psig MAOP Press. Pr   21 Crockett Station (MP 0.00) to (Inches) psig MAOP Press. Pr   21 MP 0.54 0.54 24" & 26" 400 405 650 6   21 MP 0.54 to Herrmann Station (MP 1.52) 24" 400 675 675 6   21 Herrmann Station to Reis Avenue 16" 250 258 575** 55   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 58   21 Napa "Y" to MP 35.05 12" & 26" 450 675 67   21 MP 35.05 to MP 51.41 12" 450 500 720 67   21 MP 53.12 to MP 110.4 12" 600 890 890 890	
Line ' Diameter MOP Design De   No. Location (Inches) psig MAOP Press. Pr   21 Crockett Station (MP 0.00) to (MP 0.54 24" & 26" 400 405 650 6   21 MP 0.54 to Herrmann Station (MP 1.52) 24" & 26" 400 675 675 6   21 Herrmann Station to Reis Avenue 16" 250 258 575** 5   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 58   21 Napa "Y" to MP 35.05 12" & 26" 450 675 6   21 MP 35.05 to MP 51.41 12" 450 500 720 6   21 MP 51.41 to Santa Rosa Compressor 12" 450 500 720 6   21 MP 53.12 to MP 110.4 12" 600 890 890 890	tur
No.   Location   (Inches)   psig   MAOP   Press.   Pr     21   Crockett Station (MP 0.00) to MP 0.54   (MP 0.00) to   24" & 26"   400   405   650   6'     21   MP 0.54 to Herrmann Station (MP 1.52)   24"   400   675   675   6'     21   Herrmann Station to Reis Avenue (MP 2.71)   16"   250   258   575**   5'     21   Reis Avenue to Napa "Y" (MP 12.05)   12"   250   375   585   58     21   Napa "Y" to MP 35.05   12" & 26"   450   675   6'     21   MP 35.05 to MP 51.41   12"   450   500   720   6'     21   MP 51.41 to Santa Rosa Compressor   12"   450   500   720   6'     21   MP 53.12 to MP 110.4   12"   600   890   890   890	sia
21 Crockett Station (MP 0.00) to MP 0.54 24" & 26" 400 405 650 66   21 MP 0.54 to Herrmann Station (MP 1.52) 24" 400 675 675 675   21 Herrmann Station to Reis Avenue (MP 2.71) 16" 250 258 575** 57   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 58   21 Napa "Y" to MP 35.05 12" & 26" 450 675 67   21 MP 35.05 to MP 51.41 12" 450 500 720 67   21 MP 51.41 to Santa Rosa Compressor 12" 450 500 720 67   21 MP 53.12 to MP 110.4 12" 600 890 890 890	ess
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
21 MP 0.54 to Herrmann Station (MP 1.52) 24" 400 675 675 6   21 Herrmann Station to Reis Avenue 16" 250 258 575** 5   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 54   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 54   21 Napa "Y" to MP 35.05 12" & 26" 450 675 67   21 MP 35.05 to MP 51.41 12" 450 500 720 67   21 MP 51.41 to Santa Rosa Compressor 53.12 12" 450 500 720 67   21 MP 53.12 to MP 110.4 12" 600 890 890 890	75
21 Herrmann Station to Reis Avenue   (MP 2.71) 16" 250 258 575** 57   21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 58   21 Napa "Y" to MP 35.05 12" & 26" 450 675 67   21 MP 35.05 to MP 51.41 12" 450 500 720 67   21 MP 51.41 to Santa Rosa Compressor 12" 450 500 720 67   21 MP 53.12 to MP 110.4 12" 600 890 890 890	75
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
21 Reis Avenue to Napa "Y" (MP 12.05) 12" 250 375 585 585   21 Napa "Y" to MP 35.05 12" & 26" 450 450 675 6"   21 MP 35.05 to MP 51.41 12" 450 500 720 6"   21 MP 51.41 to Santa Rosa Compressor 12" 450 500 720 6"   21 MP 53.12 12" 450 500 720 6"   21 MP 53.12 to MP 110.4 12" 600 890 890 890	75*:
21 Napa "Y" to MP 35.05 12" & 26" 450 675 6'   21 MP 35.05 to MP 51.41 12" 450 500 720 6'   21 MP 51.41 to Santa Rosa Compressor 12" 450 500 720 6'   21 MP 53.12 12" 450 500 720 6'   21 MP 53.12 to MP 110.4 12" 600 890 890 890	85
21   MP 35.05 to MP 51.41   12"   450   500   720   67     21   MP 51.41 to Santa Rosa Compressor   12"   450   500   720   67     21   MP 51.41 to Santa Rosa Compressor   12"   450   500   720   67     21   MP 53.12 to MP 110.4   12"   600   890   890   890	75
21   MP 51.41 to Santa Rosa Compressor     Station (MP 53.12)   12"   450   500   720   67     21   MP 53.12 to MP 110.4   12"   600   890   890   890	75
Station (MP 53.12)   12"   450   500   720   67     21   MP 53.12 to MP 110.4   12"   600   890   800   800   800   800   800   800   800   800   800   800   800   800   800   800   800	
21 MP 53.12 to MP 110.4 12" 600 890 890 89	75
	30
21 MP 110.4 to MP 111.2 12" 600 720 890 89	30
21 MP 111,2 to MP 111,9 12" 600 890 890 89	20
21 MP 111.9 to MP 112.1 12" 600 720 890 89	90
21 MP 112.1 to MP 113.9 12" 600 890 890 89	90
21 MP 113,9 to Ukiah (MP 114,9) 12" 600 720 890 89	30
21 MP 114.9 to Willits (MP 136.8) 8" 600 832 832 89	20
21 Napa "Y" (MP 0.00) to MP 18.64 16" 450 500 720 67	75
21 MP 18.64 to Denman Flat Tap	
(MP 24.6) 16" 450 500 720 67	/5
21 McDowell Road Tap (MP 34.84) to	•
Petaluma Meter Station (MP 35.86) 12" 450 500 593 67	5
21 Adobe (MP 0.00) to San Rafael HPU	-
Holder Station 16" & 20" 450 500 600 67	'5
21 Adobe (MP 0.00) to San Rafael HPU	
(MP 21.11) 12" 450 500 675 67	5
*50 5th & Walnut Streets, Marysville	
(MP 0.00) to Yuba City HPU	
(MP 2.87) 8" 400 400 720** 72	0**
*50 Yuba City HPU to Biggs Regulator	
Station (MP 21.62) 8" 250 250 720** 72	0**
*50 Biggs Regulator Station to Richvale	
"Y" (MP 26,94) 6" & 8" · 250 250 720** · 720	0**
*50 Richvale "Y" to Stirling Junction	
(MP 44.87) 6" & 8" 400 400 720** 720	0**
50 MP 0.00 to Paradise (MP 7.81) 8" 400 720 720 720	0
56 Pleasant Creek Field Storage System 4" 1300 1300 1250 1440	0
56 Pleasant Creek Field Storage System 8" 1300 1440 1440 1440	0 <sup>.</sup>

\*\*See Paragraph 6

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		. Nominal				
Trans	•	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
No.	Location :	(Inches)	psia	MAOP	Press.	Press
r,	······································	•	<u> </u>			
	McDonald Island Field Storage					
	System	4" - 12"	2160	2160	2160	2160
57	McDonald Island Compressor Station	,		-2.00	NT00	2,100
·	(MP 0.00) to PLS (MP 7.47)	14" 16" 18"	1025	1025	1025	1025
. 57	PLS (MP 7:47) to Brentwood Terminal		2040	1040	1020	1025
••	(MP 16.64)	18"	867	867	967	067
57B	Brentwood Terminal to McDonald	2,0	007	.007	007	807
···· ·	Tsland	2211	2160	2160	2160	2160
1.00	MP 134.5 to Milnitas Terminal		#T00	2100	~10V	2160
	(MP 150.13) :	2011	. 400	400		~~~~
101	Milpitas Terminal (MP $0.00$ ) to	20	400	400	552	552
	Rengstorff Avenue Station (MR 9 80)	361	400	400	400	
*101	Rengstorff Avenue Station Via	. 50	400	400	400	400
	Baughore to San Francisco Pordor					
	Mater Station (MB 33 68)	2011	100		000	
*101	San Francisco Meter Station Via	20	100	190	215	400
. <u>.</u>	Bayshorg Boulevard to Detrero Cas				•••	
54 1	Diant (MD AA 56)	2011	700	150	0.07	
*103	Holliston Motor Station (MD 0 00) to	20	109	150	275	275
	California Street Pogulator Station	•				
	(MD 23 55)		250	250		<b></b>
103	(Are 25,05) California Streat Dogulator Station	12	350	350	670**	500
100	to Harking Doad Motor and Miyor			•		
`• • <b>*</b>	Station (MD 26 62)	101	~ * ~	010		
105	Traination Station (AD 6 99) to Con	IŻ"	313	313	670**	500
70,0	Lorenzo Bogulator Station (MP 32 02):	· 008	050			
*105	San Lorenzo Dogulaton Station to Can	20	250	250	500	500
	Dahlo Station (ND 52 01)	201	150			<b>.</b>
* ጉሰ5	Optiand Holdon Station (ND 0 00) to	20**	.150	198	275	275
, 1,00	Barkeley City Limits (Davallol)					
	(MD 2 03)	2.41	150	100		
. 105	$\begin{array}{c} (\text{Re} 2.03) \\ \text{Raine Avenue Creaseron (MD 0.00) to} \end{array}$	24"	150	198	275	275
100	$L_{100}$ 153 (MD 0 10)	208		0.50		
*105	. West Winton Avenue Cressover	. 20"	-250	· 250°	590	500
у т <u>о</u> о	(MD 0 00) to Line 153 $(MD 0 105)$	2211 - 2411	250	050		
. 105g	(The 0.00) to hime 155 (MP 0.185)	22" & 24"	250	250	500	500
	Pablo Station (MD 11 95)	0.44	100	400	4-4	
1055	Milnitas Terminal (MD 0 00) to	24	400	400	400	400
,	Tryington Station (MD 6 88)	2011	465	400		
107	Tracy Station (MP 0 00) to Livermono	. 40"	405	480	500	720
т.V.(; ,	Junction (MD 13-11)	220	500	500	500	
· · · ·	(The point of the	44 .	500 ·	500 .	500	720

\*\*See Paragraph 6

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Exh. A (Grinstead)

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	Trans. Line		Nominal Pipe Diametor	PG&E		Dantau	Future
-	No.	Location	(Inches)	psig	MAOP	Design Press.	Design Press.
	107	Livermore Junction to Irvington					· · · · · · · · · · · · · · · · · · ·
	1075	Station (MP 31.22) Irvington Station to Milpitas	22 <sup>n</sup> ·	477	480	500	720
	108	Terminal (MP 38.06) Stanpac 2 (MP 0.00) to Vernalis	22"	477	500	500	720
	108	Field Mixing Station (MP 4.59) Vernalis Field Mixing Station to McMullin Ranch Mixer Station	16"	500	500	720	890
	108	(MP 8.79) McMullin Ranch Mixer Station to	16"	408	408	720**	720**
	108	MP 16.7 MP 16.7 to Las Vinas Station	16"	408	408	720**	720**
		(MP 43.5)	16"	412	412*	** 720**	720**
	108 108	Las Vinas Station to MP 56.25 MP 56.25 to Sacramento Gas Plant	16"	490	500	500	720
*	108	(MP 75.10) E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton	16"	412	412	500	720
	109	Gas Plant (MP 1.71) Milpitas Terminal (MP 0.00) to Sullivan Avenue Regulator	12"	185	185	275	275
*	109	Station (MP 43.47) Sullivan Avenue Regulator to	22" & 30"	375	375	400	400
]	.11	Potrero Gas Plant (MP 52.70) Helm Junction (MP 0.00) to Fresno	26"	150	150	275	275
1	.11	Junction (MP 21.65) Fresno Junction to Division Gas	12"	650	650	800	720
		Load Center (MP 28.05)	8"	400	400	720	720
1	.11	Raisin City Field Collection System	4"	800	800	800	800
1	11	San Joaquin Field Collection System	3" & 4"	800	800	960	960
1	12 14	Vernalis Field Collection System West Rio Vista Field (MP 0.00) to	3" - 8"	594	594	800	800
1	14	Antioch Terminal (MP 9.01) Antioch Terminal to Brentwood	12" & 16"	510	<b>51</b> 0	800	800
1	14	Brentwood Terminal to Dalton Avenue	22*	595	595	595	720
1	14	Dalton Avenue PLS to Livermore	22"	595	- 595	595	720
*11	16	Davis Meter Station (MP 0.00) to	22"	495	495	595	720
*1]	16	Swingle Junction (MP 3.86) Swingle Junction to Sacramento Gas	8"	500	500	500	800
		Franc (MP 12.89)	8"	500	500	. 500	720

\*\*See Paragraph 6

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\*\*\* MAOP reduced from 426 psig to 412 psig to match 412 psig MOP.

(See Over)

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*118	Division Gas boad Center (MP 0.00)					
	to Fresno Junction (MP 6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP.0.00)					
`	to Fresno HPU Station (MP 0:66)	. 12"	690	690	720	720
*118	Fresno Junction to MP 12.57	12"	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8" <i>.</i>	400	400	.720	720
118	Herndon (MP 0.00) to Athlone					· ·,
	(MP 38.39)	12"	400	400	720	720
118	'Livingston to Collier Road (MP 74.89)	6"	400	720	720	720
118	Collier Road to Bradbury Road		400	100	400	
• •	Regulator Station (MP 83.74)	6"	400	400	400	400
118	Bradbury Road Regulator Station to	<b>C</b> 11	500	000	000	
· · ·	MP 84,69	6"	500	890	890	890
119	Davis Meter Station (MP 0.00) to					
	Swingle Junction (MP 3.85)	12"	780	792	800	800
119	Swingle Junction to MP 4.85	12"	500	720	800	720
119 ·	MP 4.85 to MP 11.14	12"	500	520	800	720
119	MP·11.14 to MP 11.35	10"	· 500	520	800	720
119	MP 11.35 to N. Sacramento HPU		500	<b>700</b>	~~~	
•	(MP 16,46)	12"	500	520	800	720
119	N. Sacramento HPU (MP 0.00) to					con l
•	Antelope Meter Station (MP 10.17)	12"	500	500	500	600 (
119	N. Sacramento HPU (MP 0.00) to	CH = 1CH	500	500		coo
· .	Antelope Meter Station (MP 8.41)	6" & 16"	500	500	500	600
119	N. Sacramento HPU (MP 0.00) to	0.4.8	100	100	r 87	
	MP.2,80	24	T80	180	545	545
119	Eim and Traction Avenue Regulator	108	500	500	FOO	500 <sup>°</sup>
* * ^	(MP 4.6 to MP 5.5)	12"	. 500	000	500	600
118	Sonoma Avenue Regulator and Del Paso				•	
: *	Boulevard (MP 0.00) to Roseville	61	100	500	. 500	500
	Regulator Station (MP 5.25)	6" 411 a 611	100	402	200	500
120	Sutter Creek Field Collection System	4"& 0" 41 a.c1	494	4574 105	720	720
120	Succer Bucces Fleid Correction System	4. 8.0.	400	400	120	120
TST	Marysville Buttes Meter Station		•			•
• •	(MP 0.00) CO YUDA CILY HPO	C II	105	105	720	720
100	$(MP \pm 1.54)$	0	400	400	720	720
123	Antelope Meter Station (MP 0.00) to	108	500	500	670+4	67044
204	Lincoin Junction (MP 13.37)	12	500	500	67014	670^^
124	Lincoln Junction (MP 0.00) to 5th &	OU.	400	100	720	coo
104	wainut, Marysville (MP 23.40)	o	400	400	140 .	600
124	Lincoln Junction (MP 0.00) to Yuba	161	600	600	600	con .
	CITY HPU (MP 20.03)	TO.,	000	000	000	000 .

\*\*See Paragraph 6

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		Nominal				
Trans.	,	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Deşign
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
						. 1
124	Beale Air Force Base Tap (MP 0.00)	C 12	400	400	730	600
·	$(T_13.31)$ to MP 3.76	ю	400	. 400	720	600
125	Thompkins Hill Field Collection		440	440	500	704
	System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station					
	(MP 0.00) to Union Street Regulator	A 11	250	4.40	700	700
100	(MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station				•	
	(MP 0.00) to Union Street Regulator	C II	250	4 4 2	700	700
	(MP 10.89)	6"	350	442	720	720
126	Elk River Road Regulator (MP 0.00)	7.01	167	167	700	700
1100	to MP 3.62 (T 12.38, Line 126)	10"	107	107	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10	167	167	720	720
126	Union Street Regulator to Line 137	с н	167	165	700	700
	(MP 12.61)	6"	101	107	720	120
L3OA	HP Rio Vista Sacramento River	104	000	000	000	000
120-	Crossing (MP 0.00 to MP 0.50)	10	800	800	800	800
TROB'	LP RIO VISTA Sacramento River	104	400	F10	000	000
2.2.2	Crossing (MP 0.00 to MP 0.50)	10.	. 420	210	800	800
131	E. RIO VISTA FIEID (MP 0.00 to	100	605	COE	800	800
101	$MP U_{\bullet}(1)$	12 ···	600	600	800	000
. 131	E, RIO VISCA FIELD (MP 0.00) CO	101 0 121		000	900	900
101	Antioch Terminal (MP 5,15)	2411	430	438	600	720
101	Ancioch Telminai co MF 10,47	24	400	400	QVQ	120
121	(MD 16 97)	2411	138	195	600	720
121	(MP 10.07) Departured Comminal to Traington	24	450	495.	000	120
TOT	Stenewood Terminal to Invington	240	500	525	600	650
זסי	Traington Station to Milnitag	41	200	02.0	000	050
737	morminal (MD 57 (5)	30"	595	595	650	650
100	Milnitad Morminal (MP 0 00) to	50	,000	555	030	0,50
132	Martin Station (MP $A659$ )	24" 30" 36"	400	400	400	400
100	Martin Station to Potrero Plant	24 50 50	400	400	. 400	400
TJZ	(MD 51 50)	24"	145	145	275	275
120	Gierra Vista Avenue (MD $10$ 32) to	47	740	740	215	215
102	Pengetorff Avenue Station (MP 0 00					•
	to MD 1 47)	16 <sup>4</sup> £ 24 <sup>4</sup>	400	400	400	400
100	Nortin Station to Coneva Avenue	10 0 24	400	400	400	400
132	(MD 30 86)	20"	109	150	275	275
133	Cill Panch Field Collection System	<u>41 61 81</u>	400	500	720	720
130	Herndon Junction $(MP \ 0 \ 00)$ to		-100	200	,20	1
T24	MD 21 57	6" s 8"	400	500	720	720
134	MP 21.57 to Arbios Meter Station	· · ·		200		.20
	(MP 27.04)	6"	500	500	720	720
	from the state	5		~ ~ ~	. – •	

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	· · · · · · · · · · · · · · · · · · ·	Nominal				
Trans.	the second s	Pipe	PG&E			Future
Line	en en la presenta en la compañía de	Diameter	MOP		Design	Destan
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
		·	<u> </u>			<u> </u>
134	Arbios Meter Station to MP 30,50	6" & 8"	500	500	720	720
134	Arbios Meter Station to Firebaugh		•	•		
•	Regulator Station (MP 34.13)	3" & 4"	500	500	720	720
136	Ord Bend Meter Station (MP 0.00) to				•	
	MP 3.21	6" ·	479	565	720	720
136	MP 3.21 to Stirling Junction (MP					
	12.87)	6"	550	550	720	720
*137	Whipple and Albee Streets, Eureka	•				
	(MP 0.00) to MP 11.83	4" & 6"	167	167	720	720
137	Ryan Slough Regulator Station	• 1	•			
120	(MP 3.58) to Arcata (MP 7.37)	. 8"	350	350	720	720
138	Heim Tap Station (MP 0.00) to Heim	108				
120	Junction (MP 14.94)	T0.,	500	500	650	650
138	Heim Tap Station (MP 0.00) to Heim	201	700	700	000	~~~
120	Junction (MP 14.71) Nolm Junction to Elkhown Cention	20" .	700	700	800	890
T10	(MD 20 50)	100	700	000	025	
128	(Mr 20.50) Flbhorn Station to Purral Meter	TO	7,00	865	805	890
100	Station (MD 22 04)		650	650	· 065	720
138 <sup>.</sup>	Burrel Meter Station to Adams & Elm	TO	0.00	000		720
<b>L</b>	Meter and Regulator Station (MP 38.5	91 76"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry	-, 20	000			120
•	& Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas	,				120
• •	Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator					• – •
	Station (MP 50,02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (T 46.64)	10" .	650	720	720	720
141E	Thornton Meter Station to E. Thornton					
	Field Collection System	4" & 6"	538	538	800	800
141W	Thornton Meter Station to W. Thornton	•				
	Field Collection System	3" - 10"	768	768	800	800
141	N.E. River Island & Walnut Grove					
1.40**	Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield	2011 2411 001	A			
1 400	Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
1425	GOSIOFU ROad Meter Station (MP 0.00)					
	(MD 9 00)	6H & 10H	600 <sup>1</sup>	600		
142	MP 9 00 to Bakarsfield Mater	0. % TO		600	120	720
*****	Station (MP 11.47)	81 c 101	300	200	720	720
143	Millar Field Collection System	3" c <u>4</u> " ·	796	200	720 800	740 800
	· · · · · · · · · · · · · · · · · · ·	04 + <del>1</del>	150	000	000	800

\*\*See Paragraph 6

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		Nominal				ť
Trans.		Pipe	PG&E			Future
Line	, · ·	Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
<u></u>				•		
144	Millar Meter Station (MP 0.00) to		•		-	
	Millar Field (MP 3.50)	10" & 12"	· 796	796	800	800
145	Maine Prairie Field Coll. System	3" 4" 6"	796	796	800	800
146	Maine Prairie Meter Station			•••		-
	(MP 0.00) to Maine Prairie			· '	• •	
	Field (MP 6.00)	. 8 <sup>11</sup>	796	796	800	800
147	Whipple Road Crossover (MP 0.00) to			•	•	-
	San Carlos Regulator Station	:		•		
	(MP 3.39)	20" & 24"	400	400	400	400
148	McMullin Ranch Mixer Station				-	
	(MP 0.00) to Ceres Regulator	۰.				
	Station (MP 18.24)	8"	408	408	720	720
149	Winters Field Collection System	4" & 6"	· 750	750 ·	800	800
150	Winters Meter Station to Davis	· ·		•	• .	
·	Meter Station (MP 18.09)	6"	750	·750	· 800	800
151	Afton Odorizer Station (MP 0.42) to					
	Afton Regulator Station (MP 14.05)	6"	250	250	720	720
152	Afton Field (MP 0.00) to Afton	, · · <i>:</i>				•
	Odorizer Station (MP 0.42)	6" 6	250	250	720	720
153	Irvington Station (MP 0.00) to				. – -	
	Marina Boulevard Station (MP 18.00)	· · 30"	420	420	500**	500**
*153	Marina Boulevard Station to 2nd and					
	Market Streets (MP 27.89)	24 <sup>u</sup>	246	246	<sup>°</sup> 275	275
153	Tap to 50th Avenue Holder	· · ·				2,0
•	Station	16" & 20"	246	246	275	275
153	Tap to Oakland Holder Station	20"	246	246	275	275
153	Alvarado Crossover to Line 105	16"	250	250	500**	500**
*153	Fairway Avenue Crossover to Line			200,	: 000	500
	105	`20"'& 30" `	150	1.98	542	500
155	Durham Field Collection System	4"	680	680	800	800
156	Durham Field (MP 0.00) to Durham	•			000	
	Field Meter Station (MP 5.72)	6"	· 680	680	<sup></sup> 800	800
158	Dunnigan Hills Field (MP 4.90) to	·· · ·		000	000	000.
	Dunnigan Hills Meter & Regulator			•		
-	(MP 13,65)	6"	500	564	800	800
*158	Woodland Field Collection System	3 <sup>H</sup> & 4 <sup>H</sup>	500	564	800	800
159	Pleasant Creek Compressor Station	, <del>.</del> .	· · · ·			000
	(MP 0.00) to V 0.65	4" <sup>'</sup>	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator	-	0,0	210	2000	575
	Station (MP 3.91)	<u>4</u> 11	975	975	1000	975
159	Pleasant Creek Regulator Station to	* .			1000	213
	Winters Meter Station (MP 6.08)	· 40	750	'750 <sup>`</sup>	່ສຸດດໍ	800
159	Winters Field Collection System	<b>4</b> <sup>11</sup>	- 750	750	800	800
		*	100	100	000	000

\*\*See Paragraph 6

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Trans.	. :	Nominal Pipe Diameter	PG&E		Docian	Future	ι
No.	Location	(Inches)	psig	MAOP	Press.	Press.	
*162	Tracy Station (MP 0.00) to Banta						
160	Regulator Station (MP 7.73)	.6" & 8"	365	365	720	720	
162	(MP 5.59)	, 10"	. 365	720	720	720	•
164	Coalinga Field Collection System	10" & 8"	498	498	865	890	
1.67	E. Beehive Bend Odorizer Station (MP 0.00) to Yuba City HPU.	1211 - 1611	900	800	900	000	•
167	Wild Goose Field Meter (MP 0.00) to Wild Goose Mixer & Odorizer Station	12 & 10	000	000	800	800	
167	(Parallel) Wild Coose Mixer to Cridley	10.	800 -	800	800	800	
<b>TO</b> 1	Tunction (MD 6 54)	<b>Q</b> 11	800	800	800	800	
167	Wild Coose Collection System	3" c. 4"	800	800	800	800	
167	Princeton Field Collection System	5 & 4	000	000	000	000	
	(MP 4.12 to MP 7.60)	3 H	800	800	800	800	
167	Compton Landing Field Collection	41 - 61		000	~~~	~ ~ ~	
	System	4"& 6"	800	800	800	800	
167 168.	Bounde Creek Field Collection System River Island Field Collection System	4" 	800	800	800	800	
169	HP Divor Icland Field Collection System	4" 6" 8"	800	800	800	800	~
100	Tb Tb	3" - 8"	698	698	800	800	١_
169 <sub>.</sub>	Beehive Bend, Willows, Llano Seco, & Perkins Lake Field Collection		, ,				
172	System W Beebive Bend Meter Station	3" - 20"	800	800	800	800	
<b>T</b> 15	(MP 0.00) to Swingle Junction						
	(MP 69.81)	18" & 20"	800	800	800	800	
172	Swingle Junction to Sacramento Gas Plant (MP 79,15)	16"	500	520	720	720	
172	Crosstie Between Line 172 (MP 0.00)		000	000			
172	& Line 167 (MP 0.60) Crosstie Between Line 172 (MP 75.45)	10	800	. 800	800	800	
2,0	& Line 119 (MP 9.68)	12"	500	520	720	720	
173 <sub>.</sub>	Line 123 (MP 0.00) (V 6.51) to						
	Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720	
174	Arbuckle Field Collection System	2" - 10"	800	800	800	800	
176	System	211	555		800	800	
176	Roberts Island Field (MP 0.00) to	2 - 0	555	555	000	500	
	Tracy Station (MP 18.85)	6" & 8"	555	555	800	800	
<b>1 / /</b>	to Grapeway Regulator Station						
	(MP 0.87)	10"	819	819	960	960	

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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future Design
NO.	Location	(Inches)	psig	MAOP	press.	press.
177	Grapeway Regulator to Stirling Junction Meter Station (MP 7.68)	 6" & 10"	469	469	600	600
177	Fell Regulator & Odorizer (MP 0.00) to Sacramento Avenue Junction			•	•	
	(MP 4.75)	16"	819	819	960	960
177	Sacramento Avenue Junction to	101	010	010	060	000
177	Tap 27.60 (MP 0.00) to Tap 29.87		. 819	819	960	960
, 177	Corning N. Dome	6" & 8"	819	819	960	960
177	Compressor Station (MP 37.84) Gerber Compressor Station to	12"	819	819	960	960
177	Cummings Creek PLS (MP 163.04) Cummings Creek PLS to Thompkins Hill	12"	819	819	960	960
177.	Meter & Regulator Sta (MP 178.18) Thompkins Hill Meter & Regulator	12"	430	430	720	720
	Station to Ryan Slough Regulator Station (MP 192,26)	12"	350	442	600	600
177	Crosstie Between Lines 177 (T 37.8) and Line 400 (V 149.18)	12"	819	819	960	960
177	Tap (V 43.87) to Red Bluff and	<i></i>		~ 1 0		
<b>1</b> 00	Diamond National (MP 1.24)	6"	819	818	960	960
177	Rancho Capay Field Coll. System	<u>4</u> " 011 - 2011	813	819	960	960
180	Soap Lake Meter Station (MP 0.00)	8" - 20"	421	421	500	500
	to V 1.56	10"	300	300	400	400
181	V 6.19 to Watsonville Meter Station	10" 6 12"	300	303	400	400
181	Anzar Road Meter and Regulator (MP 0.00) to Watsonville Meter	10 0 10	500	505	400	400
	Station (MP 11.19)	10" 16" 12"	300	303	400	400
*182	Serpa "Y" (MP 0.00) to Shell	••		•		
	Chemical Meter Station (MP 18.23)	$4^{"} - 12"$	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun Junction Meter Station (MP 18.87)	12"	435	. 435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	Firebaugh Regulator Sta. (MP 0.00)	- •			200	000
	to Moffat Field Meter Sta, (MP 6.35)	3"	320	320	800	800
185 186	Hollister Field Collection System Dos Palos Meter Station (MP 0.00)	4"	396	396	600	500
	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

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Milana		Nominal	DG-B			
Trans,		Pieneten	PG&E		~ 1	Future
Line		Diameter	MOP		Design	Design
NO.	Location	(Inches)	bard	MAOP	Press.	Press.
187	San Ardo Field Meter Station		•			
	(MP 0.00) to Jolon Road Regulator	,	,			
	Station (MP 22.58)	6"	313	313	870	870
187	Jolon Road Regulator Station to	-	• 10	510	0,0	010
	Harking Road Meter & Mixer Station					
۰:	(MP 65.70)	<u>g</u> ii	212	313	720	720
189	Elk River Road Regulator Station	. •	, ,	773	720	720
102	$(MP \cap O)$ to Humboldt Pay P P				•	
۰.	(MD 1 72)		250 -	440		
790	(HE 1.74) Vottloman Compusedor Station	10.4	320	442	720	720
1.90	(MD <sup>1</sup> 0,00) to Copling Nodo Storage					
	(MP 0.00) to Coalinga Nose Storage	101 - 161	0160			
100	Field (MP 16.08)	12" & 16"	<u> 2160</u>	2160	2160	2160
190	Coalinga Nose Storage Field to				<b>.</b>	
101	Union Oil Company (MP 16.22)	10"	2160	2160	· 2160·	2160
191	Antioch Terminal (MP 0.00) to Los	<b></b>			,	
	Medanos Junction (MP 5.81)	30" & 34"	315	600	600 ·	600
191	MP 3.87 to MP 9.93 Via Pittsburg	-	•		•	
	Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road					
	Regulator Station	16" 20" 24"	315	338	600 .	600
*191	Reliez Station Road Regulator	•				
	Station to MP 29.36	8" 10" 12"	268	283	400	400
*191	Junction Line 191 (MP 29,36) to	•				•
	MP 32.76	10"	268	270	400	400
*191	MP 32.76 to Martinez Meter and	•				
• •	Regulator Station (MP 35.83)	10"	268	268	400	400
*191A	Junction Line 191 to Ardilla and				-	
	Cămino Pablo & Orinda Regulator					
	Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley					
•	Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193	Malton Field Collection System	4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North			•		
	Collection System	· 6"	819	819 -	960	960
194	McMullin Ranch Mixer (MP 0.00) to	*				
-1	MP 2,83	8" & 10"	437	437	800	800
194	McMullin Field Dehydrator Station					
-	(MP 0.00) to California Ammonia					
•	Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection			• •	•	
•	System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System			-		
	(HP)	2" <b>-</b> 16"	800	800	800	800

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		Nominal				
Trans.	· · · · ·	Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
· NO.	Location	(Inches)	psig	MAOP	Press.	Press.
*195	Rio Vista Field Collection System					
	(LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to				·	•
	Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21,41 to MP 31,23	<b>10" &amp;</b> 12"	320	500	720	720
197A	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8 <sup>11</sup>	320	· 320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	V 19.57 to V 31.24	8 <sup>11</sup>	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection					
	System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection					
	System (LP)	2 <b>" - 1</b> 6"	510	510	800	800
200	Liberty Islands Field Collection		·			
	System	4"	800	800	800	800
200	Lindsay Slough Field Collection					
	System	3" - 10"	800	868	960	960
201	Todhunters Lake Field Collection					
	System	2" - 12"	800	960	960	960
202	Grass Valley Tap to Regulator			•		
•	Station near Robin Avenue, Grass					
	Valley (MP 23.72)	6" & 8"	400	720	720	600
203	Greens Lake Field Collection System	<b>4</b> " ·	500	800	800	800
204	Bender Gas Well Collection System	3" & 4"	500	890	890	890
206	Pleasant Creek Tap to Pleasant				•	
	Creek Compressor Station	12".	975	1440	1440	1440
207	Conway Ranch Field Collection System	4" 6" 8"	800	1000	1000	1000
209	Line 400 to Line 128 at Willows	4"	450	450	720	720
210	Rio Vista "Y" (MP 0.00) to Creed					
	Station (MP 1.40)	16"	650	650	800	800
210	Creed Station to Napa "Y" (MP 25.98)	16" & 18"	650	650	740	740
210	Creed Station to Cordelia Regulator		·			
	Station (MP 19.47)	32"	650	675	675	675
210	Cordelia Regulator to Napa "Y"					
	(MP 25.62)	10" & 12"	650	650	800	800
210	Rio Vista "Y" to Creed Station					
	(MP 1.36)	10"	650	650	800	800
210	Cordelia Regulator to Herrmann					
	Station	24"	650	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil					
•	Meter Station	18"	650	720	720	675

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		Nominal				
Trans.	,	Pipe	PG&E			Future
Line	· · ,	Diameter	MOP		Desian	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
2:15	MP 0.00 to MP 20.05	<u>12"</u>	500	890	890	890
220	Rio Vista "Y" (MP 0.00) to Davis					
	Meter & Regulator Station					
	(MP 22.01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan					
	Meter & Regulator Station					
	(MP 34.11)	6" & 8"	500	500	500	800
300A	Colorado River (MP 0.00) to Topock		•			
:	Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A					,
	(MP 40.87)	. 34"	867	867	890	890
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	815	815
300A	PLS 2A to PLS 2AX (MP 130,37)	34"	688	688	688	688
300A	PLS 2AX to Hinkley Compressor	•			•	
<i>.</i> •••	Station (MP 159.33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS					575
	3A (MP 203.02)	34"	861	861	890	890
300A	PLS 3A to PLS 4A (MP 256.21)	34"	803	817	.817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor	•				101
• •	Station (MP 353,85)	34"	669	688	· 688	688 .
300A	Kettleman Compressor Station to					000
	PLS 6A (MP 436.74)	· 34" ·	840	840	890	890
300A	PLS 6A to Pacheco Pass PLS					020
• :	(MP 461.07)	· 34"	715	. 715	715	715
300A	Pacheco Pass PLS to PLS 7A Silver				•	, 20
	Creek (MP 490.65)	34"	631	631	715	715
300A	PLS 7A to Milpitas Terminal Station					
•	(MP 502,34)	34"	558	558	676	676
300B	Colorado River (MP 0.00) to Topock	•				
•	Compressor Station (MP 0.45)	34"	660	660	735	735
300B	Topock Compressor Station to PLS 1B		. •			
	(MP 40.49)	34"	867	867	894	894
300B	PLS 1B to PLS 2B (MP 103.51)	34"	815	821	821	821
300B	PLS 2B to PLS 2BX (MP 130.40)	34"	688	688	688	688
300B	PLS 2BX to Hinkley Compressor					
	Station (MP 161.02)	34"	573	573	573	573
300B	Hinkley Compressor Station to PLS					
•	3B (MP 203.07)	34"	861	861	897	897
300B	PLS 3B to PLS 4B (MP 256.64)	34"	803	816	816	816
300B	PLS 4B to PLS 5B (MP 299.00)	34"	736	757	757	757
300B	PLS 5B to Kettleman Compressor					
	Station (MP 354.02)	34"	669	688	688	688

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		Nominal				
Trans.		Pipe	PG&E			Future
Line		Diameter	MOP		Design	Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
	·	•				
300B	Kettleman Compressor Station to PLS					
, 	6B (MP 436.85)	34"	840	840	890	890
300B	PLS 6B to Pacheco Pass PLS (MP		· · ·		*	
	461.08)	34"	715	715	715	715
300B	Pacheco Pass PLS to PLS 7B Silver	- <b>4</b> 10		·	~ * *	
	Creek (MP 490.92)	34"	631	631	715	715
300B	PLS 7B to Milpitas Terminal Station	2.4.0		·	م م <sup>ن</sup> م	
	(MP 502.64)	34"	600	669	669	669
301G	Hollister Meter Station (MP 0.00)					
. •	to Moss Landing Power Plant		500	500	:	
2018	(MP 24.68) Wallistan Mater Chatien (MD 0.00)	24" & 30"	500	500	200	500
301A	Hollister Meter Station (MP 0.00)		•	• •	• .	
	to Moss Landing Power Plant	201	200	200		
2017	(MP 24,84) Dolon Bood Notion Station (ND 0 00)	20"	3,96	396	500	500
JOIR	to Willtown Pogulator Station		•			
	(MD 14 02)	128	100	100	. 600	ÊGO
*3010	Hilltown Regulator Station to	14	400	400	.000	500
	Harking Road Meter and Mixer		•			
	Station (MP 17.20)	8" s 12"	313	313	500	500
*301₽	Espinosa Road (MP $0.00$ ) to Marina	o a re	0,0	210		500
50 H	Regulator Station (MP 7.94)	16"	408	412	400	412
*301E	Crosstie - Monterey #2 (MP 0.00) to		100	· · · ·		
	Main 301 (MP 1.02)	12"	408	408	500	500
301D	Anzar Tap Station to Anzar Road				000	500
	Meter & Regulator Station (MP 1.72)	10" <sup>`</sup>	500 '	500	500	500
301H	Anzar Tap Station to Anzar Road					000
	Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes, W. Butte, Butte	• • •	•.		· · ·	-,
	Slough, Grimes, Sycamore, Kirk &					
	Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	Buckeye Creek PLS (MP 0.00) to	••		• •	• •	
•	Hershey Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood	•	•	•••	·	•
	Terminal (MP 7.86)	36"	720	· 720 ·	720	720
303	Brentwood Terminal to Irvington			•		
	Station (MP 42.83)	36" `	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop				- 1	
	Dehydrator & Odorizer Station	:		•		
	(MP 11.29)	12"	825	825	825	825
304	Lathrop Field Collection System	3" - 12"	825	825	825	825
306	Kettleman Compressor Station			•		•
	(MP 0.00) to Dry Creek PLS					
	(MP 43,3)	20"	840	840	840	840

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(See Over)

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		Nominal					
Trans.		Pipe	PG&E		•	Future	١
Line		Diameter	MOP		Design ·	Design	
No	Location	(Inches)	psig	MAOP	Press.	Press	
			<u>F</u>			12000.	
306	Dry Creek PLS to Morro Bay Power						
	Plant (MP 70,02)	20"	650	650	840	. 840	
307	Spreckels Sugar Meter Station						
	(MP 0.00) to Spreckels Sugar						
	Regulator (MP $16.36$ )	8"	500	500	915	890	
307	Derrick Road Tan (MP 0 00) to		000	000	520	000	
307	Arbios Regulator Station (MP 4.95)	8"	500	890	915	890	
213	$M_{2} = \frac{1}{2} \frac{1}$	.0	500	0.00	213	090	
211	Main 500 (MF 0.00) (V 100.04A) to		•				
	(AD 54 44)	101 0 121	700	700	960	000	
<b></b>	(MP  54,44)	10 & 12	700	700	. 960	090	
311	Parallel Section (MP 31.97) to	, י	700	010	000	000	
	MP 38,49	12"	700	810	960	890	
312	Line 300A (MP 0.00) (T 2/3.2/) to						
	Paloma Field Meter Station	<u></u>					
	(MP 8.00)	8"	736	740	820	820	
313	Lucerne Valley Tap Meter Station to						
	Permanente Company Meter (MP 34.4)	8" & 10"	573	573	720	720	
314	Hinkley Compressor Station (MP 0.00)	•			•		
	to MP 24,19	12"	861	861	890	890	
314	MP 24.19 to MP 29.00	10"	260	260	7201	720	
314	MP 29.00 to Black Mountain Meter &			•			
	Regulator Station (MP 43.18)	8" & 10"	260	260	720	720	(
314	Tap to Riverside Cement	· 8"	260	260	720	720	•
314	Tap to Airbase Road Meter Station	8" .	260	260	720	720	
*316	Dutch Slough & River Break Field						
	Collection System	2" - 12"	800	80 <b>0</b>	800	80Ó	
317	Chickahominy Field Collection					•	
	System	3"	975	975	975	975	
318	Black Butte Field Collection System	3"	911	911	960	960	
372	Ridgecrest Tap to Ridgecrest Primary	-			200	500	
	Regulator	67	700	700	960	960	
400	California-Orogon Border (MD 0 00)	Ŭ	700	100	200	200	
400 .	to mignests Compressor Station						
	(WD 24 60)	360	011	o11	110	011	
400	(MP 24.00) Wienacha Compagana Chatien to	50	JTT	211	711	911	
400	Tradian Graduan DIG (ND 40 (4)	<u>эсн</u> .	017	011	613	011	
	Indian Springs PLS (MP 48,04)	20	911	911	911	911 <sup>.</sup>	
400	Indian Springs PLS to Burney	264	011				
	Compressor Station (MP 82.33)	36"	911	911	911	911	
400	Burney Compressor Station to						
	MP 104.20	36"	911	911	911	911	
400	MP 104.20 to Shingletown PLS			_ · · ·			•
	(MP 115,26)	36"	911	915	942	942	
400	Shingletown PLS to Gerber Compressor						
	Station (MP 149.18)	36"	911	911	911	911	

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
400	Gerber Compressor Station to Delevan Compressor Station			·		
	(MP 197.83)	26" & 36"	911	911	911	911
400	Delevan Compressor Station to					
	Buckeye Creek PLS (MP 233.87)	36"	1040	1.040	1040	1040
400	Buckeye Creek PLS to Antioch					
	Terminal (MP 298.87)	26" & 36"	975	975	975	975
402	Redding-Calaveras Tap (MP 0.00) to					
	PLS (MP 9.96)	12"	300	300	865	865
402	MP 9.96 to Calaveras Cement Tap					000
	(MP 38,10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed				• - •	720
	Station (MP 1.38)	16"	650	650	855	800
						000

\*Indicates that line or sections of line are under 20% SMYS, but are listed for the purpose of continuity.

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## DISTRIBUTION MAINS OPERATING AT OR OVER 20% SMYS

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•					
	Nominal			•	
	Pipe	PG&E			Future
•	Diameter	MOP		Desim	Design
Location	(Inches)	nsia	MAOD	· Droce	Drose
	(Inches)	para	PIROF	FIC33.	FICSS.
COAST VALLEYS DIVISION	• •				
Monterev #1 - Harkins Road Meter & Mixer					
Station to Fig-Frank Streets Regulator	· •	•		:	
Station	8" © 12"	313	313	500	400
Monterey #2 - Fort Ord to Fig-Frank Streets	0 u u=	0.20	010	500	-100
Regulator Station	104124164	212	212.	400 -	400
Monterey (V-18 65 to Carmel V-2 13) Aquatito	10 12 10	515	515	400	. 400
Boad Bogulator Station	Q1 c 101	212	212	500	. 100
Road Regulator Station	0	212	272	500	. 400
narkins Road Meter and Mixer Station to		212		500	500
	8" & IU"	313	313	500	500
MP 2.45 to MP 3.50	8"	313	313	500	500
MP 3.50 to California Street Regulator				•	
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel				•	
Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
	4 •	· · ·	•		•
COLGATE DIVISION				· ·	
Yuba City HPU Holder to Market Street					•
Regulator Pit	6"& 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
				•	• • • •
DRUM DIVISION			•		
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	315	338	600 · ·	600
General Chemical Tap	4 <sup>11</sup>	315	338	600	600
Pacific States Steel Feeder	12"	420	420	600	500
Warm Springs Feeder	2" & 4"	465	465	500	600
Port Costa Feeder	6"	315	338	600	· 600
50th Avenue Holder Feeder Off Line 105	16" & 20"	150	198	275	275
Pittsburg Town Feeder	12"	315	338	600	. euo
Concord Feeder to Alpha Beta Regulator	8"	315	600	600	600
Oleum Steam Plant Tap	8" 10" 12"	250	250	275	275
San Ramon Feeder	16"	500	500	500	600
Standard Oil Feeder	20 20H	100	400.	400	400
CONTRACT OFF LOGOCT	22	400	400	400	400
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NORTH BAY DIVISION Cotati Feeder     8"     450     500     675     675       12" Line 21 (V-16,15) to Fine Street Meter Station     '8"     450     500     675     675       12" Line 21 (V-16,15) to Kilburn Regulator Station     '8"     450     500     675     675       12" Line 21 (V-16,15) to Kilburn Regulator Station     10"     450     500     675     675       6" Sonoma Tap Line     6"     450     500     675     675       SACRAMENTO DIVISION     Sacramento Gas Plant to North Sacramento HPU Holder     8" & 12"     260     260     400     400       Tremont Tap to Dixon Meter Station     6"     500     750     800     800       Peninsula Main     16" & 20"     109     109     275     275       SAN FRANCISCO DIVISION     3"     800     800     900     900       Yosemite Avenue Feeder     3"     800     800     900     900       Yosemite Avenue Feeder     6"     400     720     720     720       Jine 300A to California-Portland Cement Company Smelli	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
Cotati Feeder   8"   450   500   675   675     12" Line 21 (V-16.15) to Fine Street Meter   '8"   450   500   675   675     12" Line 21 (V-16.15) to Kilburn Regulator   '8"   450   500   675   675     12" Line 21 (V-16.15) to Kilburn Regulator   '8"   450   500   675   675     Station   10"   450   500   675   675     Sittion   8" & 10"   450   500   675   675     Sacramento Gas Plant to North Sacramento HPU   8" & 12"   260   260   400   400     Tap to Dixon Meter Station   6"   510   750   800   800     Tap to Dixon Meter Station   6" & 510"   412   412   720   720     SAN FRANCISCO DIVISION   16" & 20"   109   109   275   275     Runters Point Power Plant Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   800   800   900   900     Jixon Dryer Feeder   6"   400   720   720   720	NORTH BAY DIVISION					
12" Line 21 (V-16.15) to Fine Street Meter   '8"   450   500   675   675     12" Line 21 (V-16.15) to Kilburn Regulator   10"   450   500   675   675     Station   10"   450   500   675   675     Kilburn Regulator Station to Yountville   6"   450   500   675   675     Sacramento Gas Plant to North Sacramento HPU   B" & 12"   260   260   400   400     Holder   8" & 12"   260   260   400   400     Tremont Tap to Dixon Meter Station   6"   550   750   800   800     Tap to Union Carbide (MP 0.00 - MP 4.05)   8" & 10"   412   412   720   720     SAN FRANCISCO DIVISION   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   803   817   865   865     Shilburn Bighway Feeder   6"   400   400   400   720   720     Lin 300A to California-Portland Cement Company   3" <td>Cotati Feeder</td> <td>8"</td> <td>450</td> <td>500</td> <td>675</td> <td>675</td>	Cotati Feeder	8"	450	500	675	675
Station   30   450   500   675   675     12" Line 21 (V-16.15) to Kilburn Regulator Station   10"   450   500   675   675     Sittion   10"   450   500   675   675     Kilburn Regulator Station to Yountville   8" & 10"   450   500   675   675     SACRAMENTO DIVISION   Sacramento Gas Plant to North Sacramento HPU Holder   8" & 12"   260   260   400   400     Tremont Tap to Dixon Meter Station   6"   412   412   720   720     SAN FRANCISCO DIVISION   8" & 10"   412   412   720   720     SAN FRANCISCO DIVISION   8" & 10"   415   145   275   275     Hunters Foint Power Plant Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   803   817   865   865     Shiling Highway Feeder   6"   400   720   720   720     Dixon Dryer Feeder   6"   650   720   720   720     Clovis Feeder Main   6" & 12"   650   650	12" Line 21 (V-16.15) to Pine Street Meter	1.00	450	r oo	( D.F.	car
12" Line 21 (V-16.15) to K115011 Regulator     Station     Station     Kilburn Regulator Station to Yountville     6" Sonoma Tap Line     SACRAMENTO DIVISION     Sacramento Gas Plant to North Sacramento HPU     Holder     Holder     Tremont Tap to Dixon Meter Station     6" \$10"     450     500     SACRAMENTO DIVISION     Sacramento Gas Plant to North Sacramento HPU     Holder     Tremont Tap to Dixon Meter Station     6" \$10"     410"     Peninsula Main     Peninsula Main     Inters Point Power Plant Feeder     20"   145     145   275     SAN JOAQUIN DIVISION     Tranquility Feeder   3"     6"   400     700 preach and Central Feeder     6"   400     720   720     Pack Arenue Feeder   6"     1110 Highway Feeder   6"     6"   400     720 T20   720     Pachato Arenue Feeder   6"     11110 Highway Feeder	Station	. 8.	450	500	675	675
Silburn Regulator Station to Yountville   AS   AS <t< td=""><td>(V-16.15) to KILDUIN Regulator</td><td>10"</td><td>450</td><td>500</td><td>675</td><td>675</td></t<>	(V-16.15) to KILDUIN Regulator	10"	450	500	675	675
Allowin Work Table in the Towner Ta	Kilburn Regulator Station to Yountville	8 <sup>11</sup> c 10 <sup>11</sup>	450	- 500 500	675	675
SACRAMENTO DIVISION   Sacramento Gas Plant to North Sacramento HPU     Holder   8" & 12"   260   260   400   400     Tremont Tap to Dixon Meter Station   6"   550   750   800   800     Tap to Union Carbide (MP 0.00 - MP 4.05)   8" & 10"   412   412   720   720     SAN FFANCISCO DIVISION   8" & 10"   412   412   720   720     SAN FFANCISCO DIVISION   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN in JOAQUIN DIVISION   109   109   270   720   720     Yasemite Avenue Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   6"   400   720   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Sheiling Highway Feeder   6"   400   400   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720   720	6" Sonoma Tap Line	6"	450	500	675	675
SACRAMENTO DIVISION       Sacramento Gas Plant to North Sacramento HPU Holder     8" & 12"     260     260     400     400       Tremont Tap to Dixon Meter Station Tap to Union Carbide (MP 0.00 - MP 4.05)     8" & 10"     412     412     720     720       SAN FRANCISCO DIVISION Peninsula Main     16" & 20"     109     109     275     275       SAN JOAQUIN DIVISION Tranguility Feeder     3"     800     800     900     900       Yeanus Feeder     3"     800     800     900     900     900       Yosemite Avenue Feeder     3"     800     800     90	o bonome rep hine		100	200	075	075
Sacramento Gas Plant to North Sacramento HPU Holder   8" & 12"   260   400   400     Tremont Tap to Dixon Meter Station   6"   550   750   800   800     Tap to Union Carbide (MP 0.00 - MP 4.05)   8" & 10"   412   412   720   720     SAN FRANCISCO DIVISION Peninsula Main   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN JOAQUIN DIVISION Tranguility Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   800   800   720   720   720     Line 300A to California-Portland Cement Company Snelling Highway Feeder   3"   803   817   865   865     G" 400   720   720   720   720   720   720     Dixon Dryer Feeder   4"   500   500   720   720   720     Peach and Central Feeder   6"   412"   650   650   720   720     Vinewood Avenue Feeder   4"   400   720   720   720	SACRAMENTO DIVISION					
Holder   8" \$ 12"   260   260   400   400     Tremont Tap to Dixon Meter Station   6"   550   750   800   800     Tap to Union Carbide (MP 0.00 - MP 4.05)   8" \$ 10"   412   412   720   720     SAN FRANCISCO DIVISION   9" \$ 10"   412   412   720   720     SAN FRANCISCO DIVISION   900   20"   145   145   275   275     Hunters Point Power Plant Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   803   817   865   865     Shi Divis Division   3"   803   817   865   865     Shi Divis Diver Feeder   6"   400   400   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Shi Divis Diver Feeder   6"   400   400   720   720     Dixon Dryer Feeder   6"   610   720   720   720     Clovis Feeder Main   6"   8 12"   650   650   720	Sacramento Gas Plant to North Sacramento HPU					
Tremont Tap to Dixon Meter Station   6"   550   750   800   800     Tap to Union Carbide (MP 0.00 - MP 4.05)   8" & 10"   412   412   720   720     SAN FRANCISCO DIVISION   Peninsula Main   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN JOAQUIN DIVISION   Tranquility Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   800   800   720   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Sheiling Highway Feeder   4"   500   500   720   720     Dixon Dryer Feeder   6"   400   400   400   720   720     Vinewood Avenue Feeder   6"   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Vinewood Avenue Feeder	Holder	8" <u>&amp;</u> 12"	260	260	400	400
Tap to Union Carbide (MP 0.00 - MP 4.05)   8" & 10"   412   412   720   720     SAN FRANCISCO DIVISION Peninsula Main   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN JOAQUIN DIVISION Tranquility Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   3"   803   817   865   865     Sheiling Highway Feeder   6"   400   720   720   720     Dixon Dryer Feeder   6"   400   400   720   720     Peach and Central Feeder   6"   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Valley Nitrogen Feeder   4"   400   720   720   720 <td>Tremont Tap to Dixon Meter Station</td> <td>бч.</td> <td>550</td> <td>750</td> <td>800</td> <td>800</td>	Tremont Tap to Dixon Meter Station	бч.	550	750	800	800
SAN FRANCISCO DIVISION     Peninsula Main     Hunters Point Power Plant Feeder     20"   145   145   275   275     SAN JOAQUIN DIVISION     Tranquility Feeder   3"   800   800   900   900     Yosemite Avenue Feeder   6"   400   720   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Shelling Highway Feeder   4"   500   500   720   720     Dixon Dryer Feeder   6"   400   400   720   720     Peach and Central Feeder   6"   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Vinewood Avenue Feeder   6"   600   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Valley Nitrogen Feeder   6"   650   650   800   720	Tap to Union Carbide (MP 0.00 - MP 4.05)	8" & 10"	412	412	720	720
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	-					
Peninsula Main   16" & 20"   109   109   275   275     Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN JOAQUIN DIVISION   3"   800   800   900   900     Yosemite Avenue Feeder   6"   400   720   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Shelling Highway Feeder   6"   400   400   400   720   720   720     Dixon Dryer Feeder   6"   60   400   400   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720   720     Vinewood Avenue Feeder   6"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Varleey Nitrogen Feeder   6"   600   720   720   720     Varley Nitrogen Feeder   10" & 12"   300   303   557**   400     SAN JOSE DIVISION   10" & 12"   300	SAN FRANCISCO DIVISION		•			
Hunters Point Power Plant Feeder   20"   145   145   275   275     SAN JOAQUIN DIVISION Tranquility Feeder   3"   800   800   900   900     Jine 300A to California-Portland Cement Company Snelling Highway Feeder   6"   400   720   720   720     Dixon Dryer Feeder   6"   400   400   400   720   720     Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6"   610   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Winton Avenue Feeder   4"   400   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Valley Nitrogen Feeder   4" & 6"   400   400   720   720     Valley Nitrogen Feeder   6" 10" 12"   400   577   577**   577**     Santa Cruz to Davenport   10" & 12" 300   303   557**	Peninsula Main	16" & 20"	109	109	275	275
SAN JOAQUIN DIVISION     Tranquility Feeder   3" 800 800 900 900     Yosemite Avenue Feeder   6" 400 720 720 720 720     Line 300A to California-Portland Cement Company   3" 803 817 865 865     Shelling Highway Feeder   6" 400 400 400 720     Dixon Dryer Feeder   6" 400 720 720 720     Peach and Central Feeder   6" 650 720 720 720     Clovis Feeder Main   6" & 12" 650 650 720 720 720     Vinewood Avenue Feeder   4" 400 720 720 720 720     Winton Avenue Feeder   6" 400 720 720 720 720     Winton Avenue Feeder   6" 400 720 720 720 720     Vinewood Avenue Feeder   6" 400 720 720 720 720     Valley Nitrogen Feeder   6" 400 720 720 720 720     Valley Nitrogen Feeder   6" 650 650 800 720     Santa Cruz to Davenport   6" 610" 12" 400 577 577** 577** 577**     Milpitas Terminal to PLS #7, Kings Road,   10" & 12" 300 303 557** 400     Milpitas Terminal to PLS #7, Kings Road,   10" & 12" 300 303 577** 400     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	Hunters Point Power Plant Feeder	20"	145	145	275	275
SAN JOAQUIN DIVISION   3" 800 800 900 900     Tranquility Feeder   3" 400 720 720 720     Line 300A to California-Portland Cement Company   3" 803 817 865 865     Snelling Highway Feeder   6" 400 400 400 720 720     Dixon Dryer Feeder   6" 400 500 720 720 720     Peach and Central Feeder   6" 650 720 720 720 720     Clovis Feeder Main   6" & 12" 650 650 720 720 720     Vinewood Avenue Feeder   4" 400 720 720 720 720     Winton Avenue Feeder   6" 400 400 720 720 720 720     Winton Avenue Feeder   6" 400 720 720 720 720     Vinewood Avenue Feeder   6" 400 720 720 720 720     Winton Avenue Feeder   6" 400 720 720 720 720     Vinewood Avenue Feeder   6" 400 720 720 720 720     Valley Nitrogen Feeder   6" 400 720 720 720 720     Valley Nitrogen Feeder   6" 400 720 720 720 720     Valley Nitrogen Feeder   6" 400 400 720 720 720     Milpitas Terminal to PLS #7, Kings Road,   10" & 12" 300 303 557** 400     20" Feeder   16" 20" 30" 200 200 275 526     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	· .			•		
Tranquility Feeder3"800800900900Vosemite Avenue Feeder6"400720720720Line 300A to California-Portland Cement Company3"803817865865Snelling Highway Feeder6"400400400720Dixon Dryer Feeder4"500500720720Peach and Central Feeder6"650720720720Clovis Feeder Main6" & 12"650650720720Vinewood Avenue Feeder4"400720720720Winton Avenue Feeder6"400400720720Vinewood Avenue Feeder6"400720720720Vinewood Avenue Feeder6"400720720720Vinewood Avenue Feeder6"400720720720Vinton Avenue Feeder6"650650800720Valley Nitrogen Feeder6"650650800720Valley Nitrogen Feeder8" 10" 12"400577577**577**Santa Cruz to Davenport10" & 12"300303557**400Milpitas Terminal to PLS #7, Kings Road, 20" Feeder20" 30" 200200275526Watsonville to River Street Regulator8" & 10" 300303577**400Watsonville to Rob Roy Junction10" 300303557**400	SAN JOAQUIN DIVISION				٠	
Yosemite Avenue Feeder   6"   400   720   720   720     Line 300A to California-Portland Cement Company   3"   803   817   865   865     Snelling Highway Feeder   6"   400   400   400   720   720     Dixon Dryer Feeder   6"   400   400   400   720   720     Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720     Vinewood Avenue Feeder   6"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Valley Nitrogen Feeder   4" & 6"   400   720   720   720     Valley Nitrogen Feeder Line   8" 10" 12"   400   577   577**   577**     Santa Cruz to Davenport   10" & 12"   300   303   557**   400     Milpitas Terminal to PLS #7, Kings Road,   20" 30"   200   200	Tranquility Feeder	3"	800	800	900	900
Line 300A to California-Portland Cement Company   3"   803   817   865   865     Snelling Highway Feeder   6"   400   400   400   720     Dixon Dryer Feeder   4"   500   500   720   720     Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720     Vinewood Avenue Feeder   4"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Winton Avenue Feeder   6"   400   720   720   720     Vailey Nitrogen Feeder   4" & 6"   400   400   720   720     Vailey Nitrogen Feeder   6"   650   650   800   720     Santa Cruz to Davenport   10" & 12"   400   577   577**   577**     Milpitas Terminal to PLS #7, Kings Road,   20" Feeder   16" 20" 30" 200   200   275   526     Watsonville to River Street Regulator   8" & 10" 300   303   57** 400	Yosemite Avenue Feeder	. 6"	. 400	720	720	720
Snelling Highway Feeder   6"   400   400   720     Dixon Dryer Feeder   4"   500   500   720   720     Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Vailey Nitrogen Feeder   4" & 6"   400   400   720   720     Vailey Nitrogen Feeder   6"   650   650   800   720     SAN JOSE DIVISION   8" 10" 12"   400   577   577**   577**     Half Moon Bay Feeder Line   8" 10" 20" 30"   200   200   275   526     Watsonville to River Street Regulator   8" & 10" 300   303   57**<	Line 300A to California-Portland Cement Company	3"	803	817	865	865
Dixon Dryer Feeder   4"   500   500   720   720     Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6" & 12"   650   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720   720     Winton Avenue Feeder   4"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Cressey Way Feeder   4" & 6"   400   400   720   720   720     Valley Nitrogen Feeder   6"   650   650   800   720   720     SAN JOSE DIVISION   8" 10" 12"   400   577   577**   577**   577**     Milpitas Terminal to PLS #7, Kings Road,   10" & 12"   300   303   557**   400     Watsonville to River Street Regulator   8" & 10" 300   303   577**   400     Watsonville	Snelling Highway Feeder	6"	400	400	400	720
Peach and Central Feeder   6"   650   720   720   720     Clovis Feeder Main   6"   610   650   720   720   720     Vinewood Avenue Feeder   4"   400   720   720   720   720     Winton Avenue Feeder   4"   400   720   720   720   720     Winton Avenue Feeder   6"   400   720   720   720   720     Cressey Way Feeder   4"   400   720   720   720   720     Vailey Nitrogen Feeder   4"   66"   400   400   720   720   720     SAN JOSE DIVISION   4"   6"   650   650   800   720   720     Malf Moon Bay Feeder Line   8" 10" 12"   400   577   577**   577**     Milpitas Terminal to PLS #7, Kings Road,   10" & 12"   300   303   557**   400     Watsonville to River Street Regulator   8" & 10"   300   303   577**   400     Watsonville to Rob Roy Junction   10"   300   303   557**   400	Dixon Dryer Feeder	4"	500	· 500	• 720	720
Clovis Feeder Main $6" \& 12"$ $650$ $650$ $720$ $720$ Vinewood Avenue Feeder $4"$ $400$ $720$ $720$ $720$ Winton Avenue Feeder $6"$ $400$ $720$ $720$ $720$ Cressey Way Feeder $4" \& 6"$ $400$ $400$ $720$ $720$ Valley Nitrogen Feeder $6" \& 650$ $650$ $800$ $720$ Valley Nitrogen Feeder $6" & 650$ $650$ $800$ $720$ SAN JOSE DIVISION $6" & 650$ $650$ $800$ $720$ Half Moon Bay Feeder Line $8" 10" 12"$ $400$ $577$ $577**$ Santa Cruz to Davenport $10" \& 12"$ $300$ $303$ $557**$ Milpitas Terminal to PLS #7, Kings Road, $16" 20" 30"$ $200$ $200$ $275$ Watsonville to River Street Regulator $8" \& 10"$ $300$ $303$ $577**$ Watsonville to Rob Roy Junction $10"$ $300$ $303$ $57**$ $400$	Peach and Central Feeder	6"	650	720	720	720
Vinewood Avenue Feeder4"400720720720Winton Avenue Feeder6"400720720720Cressey Way Feeder4" & 6"400400720720Valley Nitrogen Feeder6"650650800720SAN JOSE DIVISIONHalf Moon Bay Feeder Line8" 10" 12"400577577**Santa Cruz to Davenport10" & 12"300303557**400Milpitas Terminal to PLS #7, Kings Road, 20" Feeder16" 20" 30"200200275526Watsonville to River Street Regulator Station8" & 10"300303577**400Watsonville to Rob Roy Junction10"30030357**400	Clovis Feeder Main	6" & 12"	650	650	720	720
Winton Avenue Feeder   6"   400   720   720   720     Cressey Way Feeder   4" & 6"   400   400   720   720     Valley Nitrogen Feeder   6"   650   650   800   720     SAN JOSE DIVISION   6"   650   650   800   720     Half Moon Bay Feeder Line   8" 10" 12"   400   577   577**   577**     Santa Cruz to Davenport   10" & 12"   300   303   557**   400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30"   200   200   275   526     Watsonville to River Street Regulator   8" & 10"   300   303   577**   400     Watsonville to Rob Roy Junction   10"   300   303   557**   400	Vinewood Avenue Feeder	4" 5"	400	720	720	720
Cressey Way Feeder   4" & 6"   400   720   720     Valley Nitrogen Feeder   6"   650   650   800   720     SAN JOSE DIVISION   8" 10" 12"   400   577   577**   577**     Santa Cruz to Davenport   8" 10" 12"   300   303   557**   400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30"   200   200   275   526     Watsonville to River Street Regulator   8" & 10"   300   303   57**   400     Watsonville to Rob Roy Junction   10"   300   303   557**   400	Winton Avenue Feeder	6" ·	400	720	720	720
Valley Nitrogen Feeder   6"   650   650   800   720     SAN JOSE DIVISION     Half Moon Bay Feeder Line   8" 10" 12"   400   577   577**   577**     Santa Cruz to Davenport   10" & 12"   300   303   557**   400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30"   200   200   275   526     Watsonville to River Street Regulator   8" & 10"   300   303   577**   400     Watsonville to Rob Roy Junction   10"   300   303   577**   400	Cressey Way Feeder	4" & 6"	400	400	720	720
SAN JOSE DIVISION     Half Moon Bay Feeder Line   8"10"12" 400 577 577** 577**     Santa Cruz to Davenport   10" & 12" 300 303 557** 400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30" 200 200 275 526     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Station   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	Vailley Nitrogen Feeder	6"	650	650	800	720
SAN SOLE DIVISION     Half Moon Bay Feeder Line   8" 10" 12" 400 577 577** 577**     Santa Cruz to Davenport   10" & 12" 300 303 557** 400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30" 200 200 275 526     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	CAN TOPE DIVISION					
Name   10 12 400 377 577** 577**     Santa Cruz to Davenport   10" & 12" 300 303 557** 400     Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30" 200 200 275 526     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	SAN JUSE DIVISION	8" 10" 12"	400	577	577**	577**
Milpitas Terminal to PLS #7, Kings Road,   16" 20" 30" 200 200 275 526     Watsonville to River Street Regulator   8" & 10" 300 303 577** 400     Watsonville to Rob Roy Junction   10" 300 303 557** 400	Hall Moon Bay reeder Line	10" c 12"	300	303	557**	377**
1111   10   10   10   200   200   275   526     20" Feeder   16" 20" 30" 200   200   275   526     Watsonville to River Street Regulator   8" & 10"   300   303   577**   400     Watsonville to Rob Roy Junction   10"   300   303   557**   400	Milnitas Terminal to PLS #7. Kings Road,	10 8 12	500	505		400
Watsonville to River Street RegulatorStation8" & 10"Watsonville to Rob Roy Junction10"300303557**400	20" Feeder	16" 20" 30"	200	200	275	526
Station8" & 10"300303577**400Watsonville to Rob Roy Junction10"300303557**400	Watsonville to River Street Regulator					
Watsonville to Rob Roy Junction 10" 300 303 557** 400	Station	8" & 10"	300 '	303	577**	400
	Watsonville to Rob Roy Junction	10"	300	303	557**	400

\*\*See Paragraph 6

Exh. A (Grinstead) Appendix B S.P. No. 463-8 Effective 5/1/75 Page 3/3

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
SHASTA DIVISION					
Simpson Lee Paper Mill Feeder	6"	300	. 300	720 .	720
U.S. Plywood Plant Feeder	4 <sup>11</sup>	300	720	720	720
Enterprise Town Feeder	4" & 6"	300	300	720	720
Calaveras Cement Company Feeder	8"	300	300	720	720
Red Bluff District Tap	2 <sup>1</sup>	911	911	911	9 <b>1</b> 1
STOCKTON DIVISION					
Roth Road Feeder - Manteca	4"	408	720	720	720
Valley Tomato Trunk Line	8"	412	500	720	720
Eight Mile Road Trunk Line	4 <sup>11</sup> & 8 <sup>11</sup>	412	426	720	720
Ripon-Modesto Feeder (Parallel)	8" & 12"	408	408	720	720
Dale Road to North Avenue Feeder	12"	408	408	720	720
Riverbank Feeder	8" & 10"	408	720	720	720
Carpenter Road Feeder	12"	412	500	720	720
Modesto Feeder Via Pauline Boulevard	4" & 6"	408	408	720	720
Turner Road Feeder (Parallel)	4" & 8"	300	300	720	720
McArthur Road Feeder	4"	295	295	400	720
Louise Avenue Feeder	8"	408	408	720	720
C.Y.A. Feeder - Stockton	6"	412	426	720	720
Morgan Road Feeder - Modesto	12"	260	720	720	720
Swain Road Feeder	6" & 8"	125	400	400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

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(See Over)

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Exh. A (Grinstead)

Appendix C S.P. No. 463-8 Page 1/1 Effective 5/1/75

## PIPE TYPE HIGH PRESSURE UNDERGROUND HOLDERS OPERATING AT OR OVER 20% SMYS

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Location	Length (Feet)	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design <u>Press</u> .
COLGATE DIVISION -						
Yuba City	24,784	34"	525	525	. 550	550
NORTH BAY -						
San Rafael	37,392	30"	650	650	690	690
SACRAMENTO DIVISION -	•					
Sacramento	78 <b>,</b> 452	34"	445	445	550	550
SAN JOAQUIN DIVISION -						
Fresno	43,722	30"	690	690	690	690
SAN JOSE DIVISION -						
Santa Cruz	7,221	30"	660	660	660	660
	4,838	34"	660	660	660	660

## CERTIFICATE OF SERVICE BY ELECTRONIC MAIL OR U.S. MAIL

I, the undersigned, state that I am a citizen of the United States and am employed in the City and County of San Francisco; that I am over the age of eighteen (18) years and not a party to the within cause; and that my business address is Pacific Gas and Electric Company, Regulatory Relations Department B10C, 77 Beale Street, San Francisco, California 94105.

I am readily familiar with the business practice of Pacific Gas and Electric Company for collection and processing of correspondence for mailing with the United States Postal Service. In the ordinary course of business, correspondence is deposited with the United States Postal Service the same day it is submitted for mailing.

On March 15, 2011, I caused to be served a true copy of:

## **"REPORT OF PACIFIC GAS AND ELECTRIC COMPANY ON RECORDS AND MAXIMUM ALLOWABLE OPERATING PRESSURE VALIDATION"**

[XX] By Electronic Mail – serving the enclosed via e-mail transmission to each of the parties listed on the official service list **R.11-02-019**.

[XX] By U.S. Mail – by placing it for collection and mailing, in the course of ordinary business practice, with other correspondence of Pacific Gas and Electric Company, enclosed in a sealed envelope, with postage fully prepaid, addressed to all parties of record on the service list for **R.11-02-019** who do not have an email address.

I certify and declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 15, 2011 at San Francisco, California.

/s/

/s/ Rene Anita Thomas

Last Updated: March 14, 2011

## CPUC DOCKET NO. R1102019

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