# **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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MP 2.41-MP 2.46	1966	36	.438	API 5L X 52	J.00	400	32	1966	Water	108
₽ 2.46-MP 2.53	1963	36	.422	API 51 X 52	1.00	400	33	1963	Water,	10
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₽ 3.11-MP 3.24	1956	34	.375	API 51 X 46	1.00	400	39	1956		Lea
P_3.24-MP_3.29	1965	_36	,350	API 51 X 52	1.00	400	40	1965	Water	9
IP 3.29-MP 3.33	1963	36	.438	API 5L X 52	1.00	400	32	1963	Water	101
IP 3.33-MP 9.80	1965	36	.350	API 5L X 52	1.00	400	40	1965	Water	97
9.80-MP 10.64	1965	36	.350	AP1 51, X 52	1.00	250	25	1965	Water.	91
10.64-MP 10.85	1958	30	.3125	API 5L X 42	1.00	250	29	1959	Water	80
P 10.85-NP 11.46	1929	20	.250	PG&E Spec. (1)	.80	250	38	1929		Lea
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P 11.75-MP 11.88	1958	30	3125	API 51. X 42	1.00	250	29	1959	Water	80
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P 12.69-MP 13.51	Under	20% SMY	з.					}		
P 13.51-MP 14.40	1929	20	250	PG&E Spec. (1)	.80	250	38	1929		Lea
P 14.40-KP 14.57	1956	20	250	API 5L GRD.B	2.00	250	29	1956		Lea
P 14.57-MP 14.95	1929	20	250	PC&E Spec. (1)	.80	250	38	1929		Lea
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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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40	50	120	124	++1	460	6	(172	52	6	27	54-	321	3.1	3:1	14
32	S.	110	106	-4	451	5	454	37	6	77	13-	33.	330	770	16
34	50	44	24	-01	453:	4	4/30	22	6	78	ist	3.1	301	13.1	16
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7.2	,6	63	6.3	5	464	out	440	2.2	+	7.1	570	195	5.95	29-	
2, 1	4	6.:	6.2	-1	464	ant	440	22	-	7.3	554	791	192	242	1
3.5-	6	6.5	6.5	-6-	464	Gut	438	2.2	am'	7.4	550	387	287	3.07	1
3.8	4	6.8	6.7	-1	462	quit	435	2.5	-	7.3	52 6	290	290	390	16
4.8	6	7.8	7.7	1	456	out	140	3.1	*	7.1	524	293	393	1	16
7.8	22	40	8.7	3	4155	ant	435	-	a	7.2	52	285		215	1/6
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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/	
			Replaced in	
Route No	# of Tests*	Miles Targeted	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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Description	Local Transmission HCA Miles	Local Transmission Miles Affected	Consequences (moderate winter day)
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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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

#### LINE NO. 101

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+ 62.6218 (REV 9.70)

# 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)

62.7501	REV.	4.65
02.7007	*****	

#### PACIFIC GAS AND ELECTRIC COMPANY STAND.

STANDARD PRACTICE	· .	STANDARD PRACTICE NO. 463-8
EXECUTIVE OFFICE OR DIVISION	GAS OPERATIONS	PAGE NO. 1 EFFECTIVE 5/1/75
ISSUING DEPARTMENT	GAS SYSTEM DESIGN	REPLACING 1 EFFECTIVE 6/1/73
	G PRESSURES OF PIPELINES AND MAINS ABOVE 20% OF S.M.Y.S.	· · · · · · · · · · · · · · · · · · ·

#### PURPOSE AND POLICY

To establish a uniform procedure for identifying, reviewing and revising \*1. 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. Design Pressure (DP) 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.

PACIFIC GAS AND EL	ECTRIC COMPANY	STANDARD PRACTICE NO. 463-8
· · ·	GAS OPERATIONS	PAGE NO. 2 EFFECTIVE 5/1/75
SUING DEPARTMENT		REPLACING PAGE NO. 2 EFFECTIVE 6/1/73
	UM OPERATING PRESSURES OF PIPELINE TING AT OR ABOVE 20% OF S.M.Y.S.	S AND MAINS
DEFINITIONS		
a pip	um Allowable Operating Pressure (M aline or section of a pipeline may pplicable provisions of the curren	AOP) is the maximum pressure at which be operated in accordance with all. t edition of G.O. 112.
gas sy	um Operating Pressure (MOP) (PG&E) ystem may be operated as specified n Department.	is the maximum pressure at which a by the Manager of the Gas System
psi pr	acturer or as specified in Section	is the minimum yield strength in er which pipe is purchased from the 192.107 of the current edition of
APPLICATION *7. Proced Practi		a appear in addenda to this Standard
Append	lix B - Distribution Mains Operation	tal Operating at or over 20% of SMYS ng at or above 20% of SMYS ers Operating at or above 20% of SMYS
RECORD		¥ .
docume above Operat	nt'the MAOP and/or MOP (PG&E) of 1 20% of SMYS shall be kept current	Sheets (record of hourly data) which pipelines and mains operating at or by the Division and/or Pipe Line responsibility of maintenance and
SUPPLEMENT		
MAOP a	pplement establishes the procedure nd DP for each facility.	e for designating the MOP (PG&E),
11. <b>: : ! · ·</b> · · · · ·	E. F. Sibley Vice President - Gas Operations	
DISTRIBUTION:	Division Managers Division Gas Superintendents District Gas Superintendents	Division Admin. Analyst or Equal Director, Procedures Analysis Pipe Line Operations

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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

-

		Nominal	`			•
Trans.	• ·	Pipe	PG&E			Futur
Line	1	Diameter	MOP		Design	Desig
No.	Location	(Inches)	psig	MAOP	-	Press
			2019	THIOL .	ITC30*	FLESS
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	•				
	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	. <u>1</u> 2"	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			•		•
	(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."	400	400	720**	720**
*50	Yuba City HPU to Biggs Regulator					
450	Station (MP 21.62)	8 <sup>,0</sup>	250	250	720**	720**
*50	Biggs Regulator Station to Richvale					
1.50	"Y" (MP 26.94)	6" & 8"	250	250	720**	· 720**
*50	Richvale "Y" to Stirling Junction				•	
50	(MP 44.87)	6" & 8"	400	400	720**	<b>72</b> 0**
50 50	MP 0.00 to Paradise (MP 7.81)	. 81	400	720	720	720
56 EC	Pleasant Creek Field Storage System	- 4"	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8 <sup>n</sup>	1300	· 1440	1440	1440
	-					

\*\*See Paragraph 6

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Trans, Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
	McDonald Island Field Storage System	4" - 12"	2160	2160	2160	2160
. 57	McDonald Island Compressor Station (MP 0.00) to PLS (MP 7.47) PLS (MP 7.47) to Brentwood Terminal	14" 16" 18"	1025	1025	1025	1025
 57B	(MP 16.64) Brentwood Terminal to McDonald	1.8"	867	.867	867	867
	· Island MP 134.5 to Milpitas Terminal	22"	2160	2160	2160 "·	2160
101	(MP 150.13) Milpitas Terminal (MP 0.00) to	20" .	400	400 .	552	552
*101	Rengstorff Avenue Station (MP 9.80) Rengstorff Avenue Station Via	· 36"	400	400	400	400
*101	Bayshore to San Francisco Border Meter Station (MP 33.68) San Francisco Meter Station Via	20"	180	180	275	400
*	Bayshore Boulevard to Potrero Gas ,Plant (MP. 44.56)	20"	109	150	275	275
*103	Hollister Meter Station (MP 0.00) to California Street Regulator Station (MP 23.55)		250			
103	California Street Regulator Station to Harkins Road Meter and Mixer	12"	350	350	670**	500 
105	Station (MP 26.63) Irvington Station (MP 6.88) to San	12"	313	313	670**	500
*105	Lorenzo Regulator Station (MP 23.03) San Lorenzo Regulator Station to San	20"	250	250	500	500
*105	Pablo Station (MP 52.01) Oakland Holder Station (MP 0.00) to Berkeley City Limits (Paralle1)	20"	150	198	275	275
· · 105	(MP 2.03) Baine Avenue Crossover (MP 0.00) to	24"	150	198	275	275
×105	Line 153 (MP 0.18) West Winton Avenue Crossover	20"	-250	· 250-	590	500
. 105B	(MP 0.00) to Line 153 (MP 0.185) Crockett Station (MP 0.00) to San		250	250	500	500
1055	Pablo Station (MP 11.85) Milpitas Terminal (MP 0.00) to	24"	400	400	400	400
107	Irvington Station (MP 6.88) Tracy Station (MP 0.00) to Livermore Junction (MP 13.11)	.20"	465	480	500	720
: •:	Démocron (ML TO'TT)	22 <sup>n</sup> .	500 ·	500 .	500	720

\*\*See Paragraph 6

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Exh. B (Phillips)

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

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
107	Livermore Junction to Irvington Station (MP 31.22)	22"	400	(0.0		
1075	Irvington Station to Milpitas Terminal (MP 38.06)		477	480	500	720
. 108	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	Las Vinas Station to MP 56.25	16"	490	500	500	720**
108	MP 56.25 to Sacramento Gas Plant (MP 75.10)					
*108	E. Hazleton & B Streets Regulator	16"	412	412	500	720
109	Station (MP 27.10) to Stockton Gas Plant (MP 1.71) Milpitas Terminal (MP 0.00) to	12"	185	185	275	275
	Sullivan Avenue Regulator Station (MP 43.47)	22" & 30"	375	375	400	400
*109	Sullivan Avenue Regulator to					
111	Potrero Gas Plant (MP 52.70) Helm Junction (MP 0.00) to Fresho	26"	150	150	275	275
111	Junction (MP 21.65) Fresno Junction to Division Gas	12"	650	650	800	720
	Load Center (MP 28.05)	8"	400	400		
111	Raisin City Field Collection System	4"	400 800	400	720	720
111	San Joaquin Field Collection System	3" & 4"		800	800	800
112	Vernalis Field Collection System	3" <del>-</del> 8"	800	800	960	960
114	West Rio Vista Field (MP 0.00) to		594	594	800	800
114	Antioch Terminal (MP 9.01) Antioch Terminal to Brentwood	12" & 16"	510	510	800	800
114	Terminal (MP 16,59) Brentwood Terminal to Dalton Avenue	22 <sup>11</sup>	595	595	595	720
114	PLS (MP 28.97) Dalton Avenue PLS to Livermore	22"	595	595	595	720
*116	Junction (MP 34.05)	22"	495	495	595	720
	Davis Meter Station (MP 0.00) to Swingle Junction (MP 3.86)	8 <sup>11</sup>	500	500	500	800
*116	Swingle Junction to Sacramento Gas Plant (MP 12.89)	8"	500	500	. 500	720
**See Pai	ragraph 6			200		740

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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)	700	600	600	800	
`	to Fresno HPU Station (MP Q: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			4.0.0		· ·,
	(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					
••	Regulator Station (MP 83.74)	б"	400	400	400	400
118	Bradbury Road Regulator Station to					
<u>``</u> .	. 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					
	(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					
۴.	Antelope Meter Station (MP 8.41)	6" & 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	50 <b>0</b>	600
119	Sonoma Avenue Regulator and Del Paso				•	
: 1	Boulevard (MP 0.00) to Roseville	<i>c</i> 11	100			
	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>.11</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>				
	Walnut, Marysville (MP 23.46)	8"	400	400	720.	600
124	Lincoln Junction (MP 0.00) to Yuba					
	City HPU (MP 26.03)	16"	600	600	600	600 ·
					_	

\*\*See Paragraph 6

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

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
124	Beale Air Force Base Tap (MP 0.00)					• t
	(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)	б"	<b>3</b> 50	442	720	720
126	Elk River Road Regulator (MP 0.00)		169	168	700	700
1300	to MP 3.62 (T 12.38, Line 126)	10" 10"	167 167	167 167	720 720	720 720
*126 126	MP 0.00 to Eureka Propane (MP 0.36) Union Street Regulator to Line 137	10.	107	107	120	120
	(MP 12.61) HP Rio Vista Sacramento River	6"	167	167	720	720
130A	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 MP 0.71)	12"	685	685	800	800
. 131	E. Rio Vista Field (MP 0.00) to					
	Antioch Terminal (MP 9.19)	10" & 12"	800	800	800	800
131	Antioch Terminal to MP 10.47	24"	438	438	600	720
131	MP 10.47 to Brentwood Terminal	0.41	47.0	40 F	<b>C</b> 00	700
	(MP 16.87)	24"	438	495 <sub>.</sub>	600	720
131	Brentwood Terminal to Irvington	24"	500	525	600	650
, 1 1 1	Station (MP 50.57)	24"	500	525	600	050
131	Irvington Station to Milpitas Terminal (MP 57.45)		595	595	650	650
132	Milpitas Terminal (MP 0.00) to	50	,000		030	0,50
102	Martin Station (MP 46.59)	24" 30" 36"	400	400	. 400	400
132	Martin Station to Potrero Plant		200	100		
102	(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	<b>••</b> = -				
	(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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Appendix A S.P. No. 463-8 Effective 5/1/75 Page 6/15

		Nominal				
Trans.		Pipe	DOAD			<b>**</b> ******
Line		Diameter	PG&E MOP		Decia	Future
NO.	Location	(Inches)		MAOD	Design	Design
·	FOCACTON	(Inches)	psig	MAOP	Press.	Press.
134	Arbios Meter Station to MP 30.50	6" & 8"	500	500	720	720
134	Arbios Meter Station to Firebaugh	V U V			120	720
	Regulator Station (MP 34.13)	3" & 4"	500	500	720	720
136	Ord Bend Meter Station (MP 0.00) to		000	500		720
	MP 3,21	6" ·	479	565	720	720
136	MP 3.21 to Stirling Junction (MP			- • -	• - •	, = 0
	12,87)	6۳	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				
•	(MP 3.58) to Arcata (MP 7.37)	· 8"	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"	700	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					
7 4 7	Field Collection System	4" & 6"	538	538	800	800 -
141W	Thornton Meter Station to W. Thornton		- 4 -			
	Field Collection System	3" - 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove	<b>C</b> H = 04	840			
142N	Field Collection System	6" & 8"	768	768	800	800
T#5W	Bakersfield Tap to Bakersfield Meter Station (MP 14.05)	12" 16" 20"	A+1 1-	405		
142S	Gosford Road Meter Station (MP 0.00)	12 10 20	475	475	720	720
1450	to Brundage Lane Regulator					
	(MP 9.00)	6" & 10"	600 <sup>1</sup>	600	700	
*142	MP 9.00 to Bakersfield Meter	0 & TO	600	600	720	720
· -4• · # 6+	Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4"	300 796	300 800	720 800	720
		- 0 <del>-</del> -	190	000		800 .

\*\*See Paragraph 6

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Trans. Line	· · · · · · · · · · · · · · · · · · ·	Nominal Pipe Diameter	PG&E MOP		Design	, Future Design
No.	Location	(Inches)	psig	MAOP	Press.	Press.
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	Maihe Prairie Meter Station (MP 0.00) to Maine Prairie			· · ·	· .	-
147	Field (MP 6.00) Whipple Road Crossover (MP 0.00) to San Carlos Regulator Station	8 <sup>11</sup>	796	796	800	800
148	(MP 3.39) McMullin Ranch Mixer Station (MP 0.00) to Ceres Regulator	20" & 24"	400	400	400	400
	Station (MP 18.24)	8"	408	408	720	720
149 150	Winters Field Collection System Winters Meter Station to Davis	4" & 6"	- 750	750	800	800
151	Meter Station (MP 18.09) Afton Odorizer Station (MP 0.42) to	6"	750	·750	800	800
152	Afton Regulator Station (MP 14.05) Afton Field (MP 0.00) to Afton	б" 	250	250	720	720
153	Odorizer Station (MP 0.42) Irvington Station (MP 0.00) to	··· · · · 6" · · ·	250	250	720	720
*153	Marina Boulevard Station (MP 18.00) Marina Boulevard Station to 2nd and	30"	420	420	500**	500**
153	Market Streets (MP 27.89) Tap to 50th Avenue Holder Station	24"	246	246	<sup>°</sup> 275 <sup>°</sup>	275
153	Tap to Oakland Holder Station	16" & 20" 20"	246	246	275	275
153	Alvarado Crossover to Line 105	16"	· 246	246	275	275
*153	Fairway Avenue Crossover to Line 105		250	250	500**	500**
155		20"'& 30" `	150	198	542	500
155 156	Durham Field Collection System Durham Field (MP 0.00) to Durham	4"	680	680	800	800
158	Field Meter Station (MP 5.72) Dunnigan Hills Field (MP 4.90) to Dunnigan Hills Meter & Regulator (MP 13.65)	6" 	680 500	680 564	800	800
*158	Woodland Field Collection System	3" & 4"	500 ·	564 <sup>5</sup> 564	800	800
159	Pleasant Creek Compressor Station (MP 0.00) to V 0.65	, , , , , , , , , , , , , , , , , , ,	975	975	•	800
159	V 0.65 to Pleasant Creek Regulator Station (MP 3.91)	4" 4"			1000	975
159	Pleasant Creek Regulator Station to	•		975	1000	975
159	Winters Meter Station (MP 6.08) Winters Field Collection System	4" 4"	750 750	750 750	800 800	800 800

\*\*See Paragraph 6

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.	ι
*162	Tracy Station (MP 0.00) to Banta Regulator Station (MP 7.73)	.6" & 8"	365	365	720	720	
162	Tracy Station to Byron Road (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	
167	Wild Goose Mixer to Gridley						
	Junction (MP 6.54)	8"	800	800	800	800	
167 167	Wild Goose Collection System Princeton Field Collection System	3" & 4"	800	800	800	800	
	(MP 4.12 to MP 7.60)	3 "	800	800	800	800	
167	Compton Landing Field Collection	4" & 6"	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 <sup>°</sup>	800	800	
168	River Island Field Collection System				000	000	í
	LP.	3" - 8"	698	698	800	800	٠.
169 <sub>.</sub>	Beehive Bend, Willows, Llano Seco, & Perkins Lake Field Collection System	3" - 20"	800	800	800	800	
172	W. Beehive Bend Meter Station (MP 0.00) to Swingle Junction						
172	(MP 69.81) Swingle Junction to Sacramento Gas	18" & 20"	800	800	800	800	
	Plant (MP 79.15)	16"	500	520	720	720	
172	Crosstie Between Line 172 (MP 0.00) & 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 <sup>°</sup>	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	Roberts Island Field Collection	2" - 8"					
176	System Roberts Island Field (MP 0.00) to		555	555	800	800	
177	Tracy Station (MP 18.85) Sacramento Avenue Junction (MP 0.00) to Grapeway Regulator Station	6" & 8"	555	555	800	800	
	(MP 0.87)	10"	819	819	960	960	

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
177	Grapeway Regulator to Stirling					
149	Junction Meter Station (MP 7.68)	6" & 10"	469	. 469	. <mark>600</mark>	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					•
	Corning N. Dome Station (MP 29.09)	10"	819	819	960	960
177	Tap 27.60 (MP 0.00) to Tap 29.87					
•	(MP 2.19) Parallel Section Near		010			
1 4 5	Corning N. Dome	6" & 8"	819	819	960	960
177	Corning N. Dome Station to Gerber	12"	819	819	960	060
177	Compressor Station (MP 37.84) Gerber Compressor Station to	12	919	819	960	960
1//	Cummings Creek PLS (MP 163.04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill	4.6	010	010		200
	Meter & Regulator Sta (MP 178.18)	12"	430	430	720	720
177.	Thompkins Hill Meter & Regulator	•				• •
	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		•			
	Diamond National (MP 1.24)	6"	819	819	960	960
177	Rancho Capay Field Coll. System	4"	819	819	960	960
180	Kettleman Hills Field Coll. System	8" - 20"	421	421	500	500
181	Soap Lake Meter Station (MP 0.00) to V 1.56	10"	300	300	400	400
18 <b>1</b>	V 6.19 to Watsonville Meter Station	10	300	300	400	400
TOT	(MP 20.15)	10" & 12"	300	303	400	400
181	Anzar Road Meter and Regulator	20 4 20			10,0	100
	(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)	$4^{n} - 12^{n}$	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) to Moffat Field Meter Sta. (MP 6.35)	3"	320	220	800	800
185	Hollister Field Collection System	, 3" , 4"	320 396	320 396	800 600	800 500
186	Dos Palos Meter Station (MP 0.00)		550	520		500
200	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720
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Trans: Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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				•	
	Harkins Road Meter & Mixer Station	<b>x</b>				
۰:	(MP 65.70)	. 8"	313	313	720	720
189	Elk River Road Regulator Station		,			
ı.	(MP 0.00) to Humboldt Bay P.P.					
	(MP 1.72)	10"	350	442	720	720
190	Kettleman Compressor Station					
	(MP 0.00) to Coalinga Nose Storage	1011 . 161				
100	Field (MP 16.08)	12" & 16"	<u>2160</u>	2160	2160	2160
190	Coalinga Nose Storage Field to	101	0160	0160		
191	Union Oil Company (MP 16.22) Antioch Terminal (MP 0.00) to Los	16"	2160	2160	· 2160·	2160
154	Medanos Junction (MP 5.81)	30" & 34"	31.5	600	600 <sup>°,</sup>	600
191	MP 3.87 to MP 9.93 Via Pittsburg		515	600	600 .	600
	Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road		51.5	550.	000	600
	Regulator Station	16" 20" 24"	315	338	600 .	600
*191	Reliez Station Road Regulator				000	000
	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	•				•
• 1	Regulator Station (MP 35.83)	10"	268	268	<sup>.</sup> 400	400
*191A	Junction Line 191 to Ardilla and				•	
	Cámino Pablo & Orinda Regulator					
	Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley			•		
100	Road Regulator Station	8" 2" - 8"	268	283	400	400
193 192	Rice Creek Field Collection System	_2" - 8" _4" 6" 8"	819	960	960	960
193 <sup>.</sup> 193	Malton Field Collection System Kirkwood & Rice Creek Field North	4" 6" 8"	819	960	960	960
193	Collection System	· 6"	010	010		0.50
194	McMullin Ranch Mixer (MP 0.00) to	4	819	819 .	960	960
	MP 2.83	8" & <sup>:</sup> 10"	437	437	800	200
194	McMullin Field Dehydrator Station		437	421	800	800
	(MP 0.00) to California Ammonia					
	Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection	-				200
•	System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System		*	- • •		
	(HP)	2" - 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					
	(IP)	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 <b>"</b>	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>-</b> 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
	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	204	~~~	686	6 B F	<i></i>
	Station (MP 19.47)	32"	650	675	675	675
210	Cordelia Regulator to Napa "Y"	700 - 100	650	650		~~~
010	(MP 25,62)	10" & 12"	650	650	800	800
210	Rio Vista "Y" to Creed Station	100			~~~	
010	(MP 1.36)	10"	650	650	800	800
210	Cordelia Regulator to Herrmann	0.44		<i></i>		
030	Station	24"	650	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil	100	650	-	700	Car
,	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	12"	500	000	600	
210	Rio Vista "Y" (MP 0.00) to Davis	12	500	890	890	890
240	Meter & Regulator Station					
	(MP 22.01)	8" 10" 12"	796	796	200	000
220	Davis Meter & Regulator to Dunnigan	0 10 12	790	790	800	800
2.20	Meter & Regulator Station					
	(MP 34.11)	6" & 8"	500	500	500	000
300A	Colorado River (MP 0.00) to Topock	0 2 0	500	000	500	800
50011	Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A	50 & 54	000	700	700	700
. :	(MP 40.87)	· 34"	867	867	990	000
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	890	890
300A	PLS 2A to PLS 2AX (MP 130.37)	34"	688	688	815	815
300A	PLS 2AX to Hinkley Compressor		000	000	688	688
	Station (MP 159.33)	26" & 34"	573	673	690	
300A	Hinkley Compressor Station to PLS	20 & 34	575	573	573	573
	3A (MP 203.02)	34"	861	067	000	
300A	PLS 3A to PLS 4A (MP 256.21)	34" 34"		861	890	890
300A	PLS 4A to PLS 5A (MP 299.01)	34"	803 726	817	.817	817
300A	PLS 5A to Kettleman Compressor	24	736	757	757	757
	Station (MP 353.85)	34"	660	600	6.00	
300A	Kettleman Compressor Station to	34	669	688	· 688	688
	PLS 6A (MP 436.74)	· 34" ·	040	040	000	0.00
300A	PLS OA (MF 430.74) PLS OA to Pacheco Pass PLS	54.	840	840	890	890
	(MP 461.07)	· 34"	715	715		
300A	Pacheco Pass PLS to PLS 7A Silver		715	. 715	715	715
JUUA	Creek (MP 490.65)	34"	631	621	276	
300A	PLS'7A to Milpitas Terminal Station	24	021	631	715	715
JUUA	(MP 502.34)	34"	558	550	676	686
300B	Colorado River (MP 0.00) to Topock	0 <del>4</del> .	228	558	676	676
	Compressor Station (MP 0.45)	34"	660	660	735	50 C
300B	Topock Compressor Station to PLS 1B	24	660	660	735	735
	(MP 40.49)	34"	867	067	00 Å	004
300B	PLS 1B to PLS 2B (MP 103.51)	34"		867	894	894
300B	PLS 2B to PLS 2BX (MP 130.40)	34"	815 688	821	821	821
300B	PLS 2BX to Hinkley Compressor	24	000	688	688	688
2005	Station (MP 161.02)	34"	ピヨウ	690		2-0
300B	Hinkley Compressor Station to PLS	24.	573	573	573	573
	3B (MP 203.07)	2.40	063	0.61		
300B		34"	861	861	897	897
300B 300B	PLS 3B to PLS 4B (MP 256.64) PLS 4B to PLS 5B (MP 299.00)	34"	803 726	816	816	816
300B		34"	736	757	757	757
2008	PLS 5B to Kettleman Compressor	Э.А.Н	<i>cco</i>		<b>.</b>	
	Station (MP 354.02)	34"	669	688	688	688

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP <u>psig</u>	MAOP	Design Press.	Future Design Press.
300B	Kettleman Compressor Station to PLS	34"	840	840	890	890
300B	6B (MP 436.85) PLS 6B to Pacheco Pass PLS (MP	54	040	640	890	890
200B	461.08)	34"	715	715	715	715
300B	Pacheco Pass PLS to PLS 7B Silver					. 10
	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)					
• •	to Moss Landing Power Plant (MP 24.68)	24" & 30"	500	500	500	500
301A	Hollister Meter Station (MP 0.00)	24 & 50	500	500	200	500
	to Moss Landing Power Plant	•	•	• •	•	
	(MP 24.84)	20 <sup>#</sup>	3,96	396	5,00	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 Harkins Road Meter and Mixer		•	۰. ۰		
	Station (MP 17.20)	8" & 12"	313	313	500	500
*301F	Espinosa Road (MP 0.00) to Marina	0 . 0 12 .	0,10	515		500
	Regulator Station (MP 7.94)	16"	408	412	400	412
*301E	Crosstie - Monterey #2 (MP 0.00) to			•	•	
-	Main 301 (MP 1.02)	12"	408	408	500	500
301D	Anzar Tap Station to Anzar Road	• • • • •				
201-	Meter & Regulator Station (MP 1,72)	10"	500 '	500	.500	500
301H	Anzar Tap Station to Anzar Road Meter & Regulator Station	16"	500	500	FOO	500
302	Sutter Buttes, W. Butte, Butte		. 500	500	500	500
502	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					
202	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		590 , '	5,50	000	600
	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	0.0."	<b>•</b> • -			
	(MP 43.3)	20"	840	840	840	840

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Trans, Line No,	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design - Press.	Future Design 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						
307	Regulator (MP 16,36) Derrick Road Tap (MP 0,00) to	8"	500	500	915	890	
311	Arbios Regulator Station (MP 4.95) Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station	.8"	500	890	915	890	
311	(MP 54.44) Parallel Section (MP 31.97) to	10" & 12" · · ·	700	700	. 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" 10"	861	861 260	890	890 720	
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	· 81	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	800	800	800	
317	Chickahominy Field Collection System	3"	975	975	975	975	
318	Black Butte Field Collection System	3"	911	911	975 960	960	
372	Ridgecrest Tap to Ridgecrest Primary	5 6"		·			
400 .	Regulator California-Oregon Border (MP 0.00) to Tionesta Compressor Station		700	700	960	960	
400	(MP 24.60) Tionesta Compressor Station to	36"	911	911	911	911	
400	Indian Springs PLS (MP 48.64) Indian Springs PLS to Burney	36"	911	911	911	911 <sub>.</sub>	
400	Compressor Station (MP 82.33)	36"	911	911	911	911	•
	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					277
	Buckeye Creek PLS (MP 233.87)	36"	1040	1040	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					270
	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				120	720
	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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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		Dodan	
Location			147.00	De <b>si</b> gn <sup>.</sup>	Design
	(Inches)	psig	MAOP	Press.	Press.
COAST VALLEYS DIVISION	• •			•	
Monterey #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					
Regulator Station	10" 12" 16"	313	313	400 ·	400
Monterey (V-18.65 to Carmel V-2.13) Aquajito	· · · · · ·				
Road Regulator Station	8" & 10"	313	313	500	· 400
Harkins Road Meter and Mixer Station to	• u n•		• . •		
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	0	313	777	500	5,00
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel	0	213	313	500	500
Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	500 720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313			500
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	313	720	<sup>2</sup> 870
DIM-0 FOLDALISE KOAU CO MELIULAN KOAU MAIN	4 80	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
Tup be benefit innen	Ū.	200	250	120	140
DRUM DIVISION			٠	•••	
Diamond Oaks Feeder	6"	500	500	500	600
	~	200	500		
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"	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	600
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	22*	400	400 ·	400	400
	20	-100	400	400	-100

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	маор	Design Press.	Future Design Press.
		<u></u>			··· · · · · · · · · · · · · · · · · ·
NORTH BAY DIVISION	0.8	420	500		6 <b>9</b> F
Cotati Feeder	8 <b>n</b>	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	0	450	500	675	675
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
	• <b>t</b>	,			
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
· ·			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 ·
Ailpitas Terminal to PLS #7, Kings Road,		0.0.5			500
20" Feeder	16" 20" 30"	200	200	275	526
Natsonville to River Street Regulator			0.05		400
Station	8" & 10"	300 '	303	577**	400
Atsonville 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	4"	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	911
STOCKTON DIVISION	<b>4</b> 17	100			~ * *
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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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	78,452	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.
- 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 4- 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
02.7007	*****	

### PACIFIC GAS AND ELECTRIC COMPANY STANDARD PRACTICE

EXECUTIVE OFFICE OR DIVISION \_\_

ISSUING DEPARTMENT\_

	STANDARD PRACTICE NO. 463-8
	PAGE NO. 1 EFFECTIVE 5/1/75
IGN	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 DES

#### 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	C COMPANY	STANDARD PRACTICE NO. 463-8
· · · ·	SION GAS OPERATIONS	PAGE NO. 2 EFFECTIVE 5/1/75
SUING DEPARTMENT		REPLACING 2 EFFECTIVE 6/1/73
	PERATING PRESSURES OF PIPELIN AT OR ABOVE 20% OF S.M.Y.S.	IES AND MAINS .
DEFINITIONS		
a pipélin	Llowable Operating Pressure ( e or section of a pipeline ma cable provisions of the curre	MAOP) is the maximum pressure at which y be operated in accordance with all. nt edition of G.O. 112.
<u>Maximum O</u> gas system Design Dep	n may be operated as specifie	) is the maximum pressure at which a d by the Manager of the Gas System
psi presci	ribed by the specification un	) is the minimum yield strength in der which pipe is purchased from the n 192,107 of the current edition of
APPLICATION *7. Procedural Practice.	details and supplemental da	ta appear in addenda to this Standard
Appendix A Appendix B	- Distribution Mains Operat:	ital Operating at or over 20% of SMYS Ing at or above 20% of SMYS ders Operating at or above 20% of SMYS
RECORD		4 •
document't above 20% Operations	he MAOP and/or MOP (PG&E) of of SMYS shall be kept current	g Sheets (record of hourly data) which pipelines and mains operating at or t by the Division and/or Pipe Line e responsibility of maintenance and
SUPPLEMENT		
	P for each facility.	re for designating the MOP (PG&E),
APPROVED BY: E. V1	ce President - Gas Operations	, 3 <sup>/,</sup> ,
DISTRIBUTION: DI		Division Admin. Analyst or Equal Director, Procedures Analysis

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Exh. A (Becken)

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\* Paragraph Revised

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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Trans.		Nominal Pipe	, DGa II			
Line	1	Diameter	PG&E MOP		Deed	Futur
NO.	Location	(Inches)	psig	MAOD	Design	Desig
		(Tucues)	psig	MAOP	Press.	Press
21	Crockett Station (MP 0.00) to					
23	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					
	(MP 2.71)	16"	250	258	575**	575*1
21	Reis Avenue to Napa "Y" (MP 12.05)	12"	250	375	585	585
21 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	~ ~				
21	Station (MP 53.12)	12"	. 450	500	720	675
21	MP 53.12 to MP 110.4	12"	600,	890	890	890
21 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 <sub>.</sub>
21	MP 18.64 to Denman Flat Tap			•		
21	(MP 24.6)	16"	450	500	720	675
21	McDowell Road Tap (MP 34.84) to					
21	Petaluma Meter Station (MP 35.86)	· 12"	450	500	593	675
21	Adobe (MP 0.00) to San Rafael HPU Holder Station	164 000				4
21		16" & 20"	450	500	600	675
21	Adobe (MP 0.00) to San Rafael HPU (MP 21.11)	100			•	
*50	5th & Walnut Streets, Marysville	12"	450	500	675	675
	(MP 0.00) to Yuba City HPU				• •	-
	(MP 2.87)	0.1	400			
*50	•	8 <sup>11</sup>	400	400	720**	720**
	Yuba City HPU to Biggs Regulator Station (MP 21.62)	<u></u>		· · ·	_	
*50	· · · ·	8.0	250	250	720**	720**
-50	Biggs Regulator Station to Richvale "Y" (MP 26.94)	<b>C U C U</b>				
*50		6" & 8"	250	250	720**	· 720* *
~30	Richvale "Y" to Stirling Junction	<b>* *</b> * *			•	
50	(MP 44.87)	6" & 8"	400	400	720**	<b>72</b> 0**
50 56	MP 0.00 to Paradise (MP 7.81)	- 8 <sup>11</sup>	400	720	720	720
56 56	Pleasant Creek Field Storage System	· 4"	1300	1300	1250	1440
50	Pleasant Creek Field Storage System	8"	1300	- 1440	1440	1440

\*\*See Paragraph 6

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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.
57	McDonald Island Field Storage System : McDonald Island Compressor Station	4" - 12"	2160	2160	2160	2160
. 57	(MP 0.00) to PLS (MP 7.47) PLS (MP 7.47) to Brentwood Terminal	14" 16" 18"	1025	1025	1025	1025
57B	(MP 16.64) Brentwood Terminal to McDonald	1.8"	867	.867	867	867
··· .	Island	22"	2160	2160	2160	2160
- <u>1</u> 00	MP 134.5 to Milpitas Terminal (MP 150.13)	20" ·	.400	400	"· 552	552
.101	Milpitas Terminal (MP 0.00) to Rengstorff Avenue Station (MP 9.80)	· 36"	400	400	400	400
*101	Rengstorff Avenue Station Via Bayshore to San Francisco Border					
*101	Meter Station (MP 33,68) San Francisco Meter Station Via	20"	180	180	275	400
50	Bayshore Boulevard to Potrero Gas ,Plant (MP. 44.56)	20"	109	150	275	. 275
*103	Hollister Meter Station (MP 0.00) to California Street Regulator Station	•			-72	275
103	(MP 23.55) California Street Regulator Station	12"	350	350	670**	500
· · · ·	to Harkins Road Meter and Mixer Station (MP 26.63)	12"	212	212		
105	Irvington Station (MP 6.88) to San		313	313	670**	500
*105	Lorenzo Regulator Station (MP 23.03) San Lorenzo Regulator Station to San	20"	250	250	500 ·	500
*105	Pablo Station (MP 52.01) Oakland Holder Station (MP 0.00) to Berkeley City Limits (Parallel)	20"	·150	198	275	275
. 1.05	(MP 2.03) Baine Avenue Crossover (MP 0.00) to	24"	150	198	275	275
×105	Line 153 (MP 0.18) West Winton Avenue Crossover	20"	-250	· 250·	590	500
	(MP 0.00) to Line 153 (MP 0.185)	22" & 24"	250	250	500	500
	. Crockett Station (MP 0.00) to San Pablo Station (MP 11.85)	24"	400	400	400	400
	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

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\*\*See Paragraph 6

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
107	Livermore Junction to Irvington Station (MP 31.22)	22 <sup>n</sup> ·	1.5.5			
1075	Irvington Station to Milpitas Terminal (MP 38.06)		477	480	500	720
. 108	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	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant				200	720
	(MP 75,10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton				500	720
109	Gas Plant (MP 1.71)	12"	185	185	275	275
109	Milpitas Terminal (MP 0.00) to					
<u> </u>	Sullivan Avenue Regulator					
+100	Station (MP 43.47)	22" & 30"	375	375	400	400
*109	Sullivan Avenue Regulator to					
111	Potrero Gas Plant (MP 52.70) Helm Junction (MP 0.00) to Fresho	26"	150	150	275	275
	Junction (MP 21.65)	12"	650	650	800	720
111	Fresno Junction to Division Gas					120
	Load Center (MP 28.05)	8"	400	400	720	720
111	Raisin City Field Collection System	4"	800	800	800	800
111	San Joaquin Field Collection System	3" & 4"	800	800	960	960
112	Vernalis Field Collection System	3" - 8"	594	594	800	
114	West Rio Vista Field (MP 0.00) to			004	000	800
114	Antioch Terminal (MP 9.01) Antioch Terminal to Brentwood	12" & 16"	510	510	800	800
114	Terminal (MP 16:59) Brentwood Terminal to Dalton Avenue	22"	595	595	595	720
114	PLS (MP 28,97)	22"	595	595	595	720
	Dalton Avenue PLS to Livermore Junction (MP 34.05)	22"	495	495	595	720
*116	Davis Meter Station (MP 0.00) to Swingle Junction (MP 3.86)	811	500	500	500	
*116	Swingle Junction to Sacramento Gas	-	200	500	500	800
	Plant (MP 12.89)	8"	500	500	. 500	720
**See Pai	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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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)	100	<b>C</b> 00	600	720	
,	to Fresno HPU Station (MP 0:66)	. 12" 12"	690 400	690 400	720	720
*118	Fresno Junction to MP 12.57	8" .	400 400	400	720 720	720 720
*118	MP 12.57 to Livingston (MP 73.26)	o.,	400	400	.140	
118	Herndon (MP 0.00) to Athlone	12"	400	400	720	720
110	(MP 38.39) Livingston to Collier Road (MP 74.89)	6"	400	720	720	720
· 118 118	Collier Road to Bradbury Road		-200	120	120	120
	Regulator Station (MP 83.74)	б"	400	400	400	400
118	Bradbury Road Regulator Station to	Ŭ	100	200	200	200
ν., 	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 <sup>-</sup>
119	MP.11.14 to MP 11.35	10"	- 500	520	800	720
119	MP 11.35 to N. Sacramento HPU					
•	(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				•	:
۰.	Antelope Meter Station (MP 8.41)	6" & 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	108	500	500	500	<b>C</b> 00
* * * ~	(MP 4.6 to MP 5.5)	12"	500	500	50 <b>0</b>	600
119	Sonoma Avenue Regulator and Del Paso Boulevard (MP 0.00) to Roseville				·	
3 ł	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 <sup>™</sup> & 6 <sup>™</sup>	485	485	720	720
120	Marysville Buttes Meter Station	a a o		200		120
	(MP 0.00) to Yuba City HPU		•			•
• .	(MP 11.54)	6."	485	485	720	720
123	Antelope Meter Station (MP 0.00) to					
H	Lincoln Junction (MP 13.57)	12"	500	500	670**	670**
124	Lincoln Junction (MP 0.00) to 5th &					
	Walnut, Marysville (MP 23.46)	8"	400	400	720	600
124	Lincoln Junction (MP 0.00) to Yuba					
	City HPU (MP 26.03)	16"	600	600	600	600 ·
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\*\*See Paragraph 6

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
124	Beale Air Force Base Tap (MP 0.00)		444			· · ·
125	(T 13.31) to MP 3.76 Thompkins Hill Field Collection	6"	400	400	720	600
126	System Thompkins Hill Meter Station	3" 4" 6"	448	448	720	720
	(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	<b>c</b> 11	050	4.40		=00
126	(MP 10.89) Elk River Road Regulator (MP 0.00)	6"	<b>3</b> 50	442	720	720
	to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126 126	MP 0.00 to Eureka Propane (MP 0.36) Union Street Regulator to Line 137	10"	167	167	720	720
130A	(MP 12.61) HP Rio Vista Sacramento River	6 <b>"</b>	167	167	720	720
130B	Crossing (MP 0.00 to MP 0.50) LP Rio Vista Sacramento River	10"	800	800	800	800
131	Crossing (MP 0.00 to MP 0.50) E. Rio Vista Field (MP 0.00 to	10"	. 420	510	800	800
	MP 0.71) E. Rio Vista Field (MP 0.00) to	<u>1</u> 2"	685	685	800	800
. 131	Antioch Terminal (MP 9.19)	10" & 12"	. 800	800	800	800
101	Antioch Terminal to MP 10.47	24"	438	438	600	720
131		24	400	420	QVQ	720
131	MP 10.47 to Brentwood Terminal (MP 16.87)	24"	438	495	600	720
131	Brentwood Terminal to Irvington Station (MP 50.57)	24"	500	525	600	650
131	Irvington Station to Milpitas Terminal (MP 57.45)	 30"	595	595	650	650
132	Milpitas Terminal (MP 0.00) to 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	د∡ 16 <sup>4</sup> & 24 <sup>4</sup>	400	400	400	400
132	to MP 1.47) Martin Station to Geneva Avenue					,
	(MP 39.86)	20"	109	150	275	275
133 134	Gill Ranch Field Collection System Herndon Junction (MP 0.00) to	4" 6" 8"	400	500	720	720
134	MP 21.57 MP 21.57 to Arbios Meter Station	6" & 8"	400	500	720	720
	(MP 27.04)	6"	500	500	720	720

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	· · · · · · ·	Nominal				
Trans.	t i i i i i i i i i i i i i i i i i i i	Pipe	PG&E			Future
Line	and the second	Diameter	MOP		Design	Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
	ter and a second s	-				<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				
	(MP 3.58) to Arcata (MP 7.37)	· 8"	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 38.59	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					
7 4 1 1.7	Field Collection System	4" & 6"	538	538	800	800 -
141W	Thornton Meter Station to W. Thornton	20 100				
	Field Collection System	3" - 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove	<b>CII</b> = 011	760	760		
142N	Field Collection System	6" & 8"	768	768	800	800
THEN	Bakersfield Tap to Bakersfield Meter Station (MP 14.05)	12" 16" 20"	A +1 +	And	<b>200</b>	
142S	Gosford Road Meter Station (MP 0.00)	12 10 20	475	475	720	720
1420	to Brundage Lane Regulator					
	(MP 9.00)	611 6 101	600 <sup>1</sup>	600	700	
*142	MP 9.00 to Bakersfield Meter	6" & 10"	600 <sup>°</sup>	600	720	720
	Station (MP 11.47)	8" & 12"	300	200	-	700
*143	Millar Field Collection System	3" & 4"	300 796	300	720 800	720
	TTATA TTOTA COTTOCTOU DADROW	-> 0X ++	061	800	800	800

\*\*See Paragraph 6

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
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	<b>80</b> 0	800
146	Maine Prairie Meter Station			· ·		
	(MP 0.00) to Maine Prairie	• • •			• .	
	Field (MP 6.00)	, Śu	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					
• • • •	Station (MP 18.24)	8"	408	408	720	720
149	Winters Field Collection System	4" & 6"	<sup>-</sup> 750	_ <b>7</b> 50 ·	800	800
150	Winters Meter Station to Davis	• • •			• •	
	Meter Station (MP 18.09)	6 <sup>11</sup>	750	·750	800	800
151	Afton Odorizer Station (MP 0.42) to					
1.50	Afton Regulator Station (MP 14.05)	6"	250	250	720	720
152	Afton Field (MP 0.00) to Afton					•
1 5 3	Odorizer Station (MP 0.42)	6"	250	250	720	720
153	Irvington Station (MP 0.00) to		^			
4160	Marina Boulevard Station (MP 18.00)	30"	420	420	500**	500**
*153	Marina Boulevard Station to 2nd and	<b>A A U C</b>	• • •		· · ·	
150	Market Streets (MP 27.89)	24"	246	246	275	275
153	Tap to 50th Avenue Holder			- · -	<u>.</u>	_
352	Station	16" & 20"	246	246	275	275
153 153	Tap to Oakland Holder Station	20"	246	246	275	275
*153	Alvarado Crossover to Line 105	16"	250	250	500**	500**
×122	Fairway Avenue Crossover to Line '105	1008 - 208 ·	150	100		
155		20"'& 30" `	150	198	542	500
155	Durham Field Collection System Durham Field (MP 0.00) to Durham	<b>4</b> "	680	680	800	800
190	Field Meter Station (MP 5.72)	<b>C</b> II		c.c.c.		
158	Dunnigan Hills Field (MP 4.90) to	6"	680	680	·· 800	800 <sub>.</sub>
100	Dunnigan Hills Meter & Regulator			·		
-	(MP 13.65)	6"	500	564		
*158	Woodland Field Collection System	3 <sup>H</sup> & 4 <sup>H</sup>	500 ·	564 <sup>3</sup>	800	800
159	Pleasant Creek Compressor Station	, , , , , , , , , , , , , , , , , , ,	. 500		800	800
207	(MP 0.00) to V 0.65	4" <sup>*</sup>	975	975	1000	075
159	V 0.65 to Pleasant Creek Regulator	-3	975	975	1000	975
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Station (MP 3.91)	4"	975	· 975	1000	075
159	Pleasant Creek Regulator Station to	<b>*</b> .	515		1000	975
~~~~	Winters Meter Station (MP 6.08)	4"	750	750	<sup>`</sup> 800 <sup>'</sup>	
159	Winters Field Collection System	4 <sup>n</sup>	750	750	800	800
	HTHERE THERE COTTECTON PARTEN		750	750	avv	800

\*\*See Paragraph 6

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

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.	ι
*162	Tracy Station (MP 0.00) to Banta Regulator Station (MP 7.73)	.6" & 8"	365	365	720	720	
162	Tracy Station to Byron Road (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		
167	Wild Goose Mixer to Gridley					800	
	Junction (MP 6.54)	8"	800	800	800	800	
167 167	Wild Goose Collection System Princeton Field Collection System	3" & 4" .	800	800	800	800	
	(MP 4.12 to MP 7.60)	3 "	800	800	800	800	
167	Compton Landing Field Collection	4" & 6"	800	800	800	800	
167	Bounde Creek Field Collection System	 4"	800	800	800	800	
168.	River Island Field Collection System	4" 6" 8"	800	800	800	800	
169	River Island Field Collection System		000	000	800	800	· ^
168	Tb	3" <b>-</b> 8"	698	698	800	800	ι.
169 .	Beehive Bend, Willows, Llano Seco, & Perkins Lake Field Collection System	3" - 20"	800	800	800	800	
172	W. Beehive Bend Meter Station (MP 0.00) to Swingle Junction						
172	(MP 69.81) Swingle Junction to Sacramento Gas	18" & 20"	800	800	800	800	
172	Plant (MP 79.15) Crosstie Between Line 172 (MP 0.00)	16"	500	520	720	720	
172	& Line 167 (MP 0.60) Crosstie Between Line 172 (MP 75.45)	10"	800	. 800	800	800	
	& Line 119 (MP 9.68)	12"	500	520	720	720	
*173	Line 123 (MP 0.00) (V 6.51) to		500	500		-	
	Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720	
*174 176	Arbuckle Field Collection System Roberts Island Field Collection	2" - 10"	800	800 、	800	800	
176	System Roberts Island Field (MP 0.00) to	2" <u>-</u> 8"	555	555	800	800	
177	Tracy Station (MP 18.85) Sacramento Avenue Junction (MP 0.00) to Grapeway Regulator Station	6" & 8"	555	555	800	800	
	(MP 0.87)	10"	819	819	960	960	

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Corning N. Dome Station (MP 29.09)	10"	819	81.9	960	960
177	Tap 27.60 (MP 0.00) to Tap 29.87 (MP 2.19) Parallel Section Near					
177	Corning N. Dome Corning N. Dome Station to Gerber	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 Station to Ryan Slough Regulator	12"	430	430	720	720
177	Station (MP 192.26) Crosstie Between Lines 177 (T 37.8)	12"	350	442	600	600
177	and Line 400 (V 149.18) Tap (V 43.87) to Red Bluff and	12"	819	819	960	960
	Diamond National (MP 1.24)	6" 4"	819	819	960 960	960
177 180	Rancho Capay Field Coll. System Kettleman Hills Field Coll. System	8" - 20"	819 421	819 421	960 500	960 500
181	Soap Lake Meter Station (MP 0.00) to V 1.56	10"	300	300	400	400
181	V 6.19 to Watsonville Meter Station (MP 20.15)	10" & 12"	300	303	400	400
181	Anzar Road Meter and Regulator (MP 0.00) to Watsonville Meter	•			-	
*182	Station (MP 11.19) Serpa "Y" (MP 0.00) to Shell	10" 16" 12"	300	303	400	400
*182	Chemical Meter Station (MP 18.23) Shell Chemical Meter Sta. to Suisun	4" - 12"	435	435	800	800
	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)	211	220	220	800	000
185	to Moffat Field Meter Sta. (MP 6.35) Hollister Field Collection System	、 3" .4"	320 396	320 396	800 600	800 500
185	Dos Palos Meter Station (MP 0.00)				÷	
	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

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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.
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	,				
·:	(MP 65.70)	. 8"	313	313	720	720
189	Elk River Road Regulator Station					
۰.	(MP 0.00) to Humboldt Bay P.P.			• • -		
	(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		0160	27.62
190	Coalinga Nose Storage Field to	12 & 10	210U	2160	2160	2160
1.50	Union Oil Company (MP 16.22)	16"	2160	2160	· 2160·	2160
191	Antioch Terminal (MP 0.00) to Los	u.o	1100	2100	2100	2100
	Medanos Junction (MP 5.81)	30" & 34"	315	600	600 <sup>°</sup> ·	600
191	MP 3.87 to MP 9.93 Via Pittsburg	- ·	+			000
•	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 <sup>·</sup>	400	400
*191	Junction Line 191 (MP 29,36) to	•				•
4101	MP 32,76	10"	268	270	400	40 <u>0</u>
*191	MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)	101	0.00	0.00	· • • • •	
*191A	Junction Line 191 to Ardilla and	10"	268	268	400	400
··· ± J ±E3	Cámino Pablo & Orinda Regulator					
	Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley		200		400	400
•	Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193 <sup>.</sup>	Malton Field Collection System	<sup>`</sup> 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	*		_		
104	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"	405	100	0.50	
194	McMullin Ranch Field Collection	0	437	437	960	960
	System	2" & 10"	437	437	800	900
195	Rio Vista Field Collection System	- 0 TA	102	• <b>z</b> • 1	000	800
-	(IP)	2" - 16"	800	800	800	800
		~ -			·	000

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

Trans.		Nominal 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	
197A	Las Vinas Station to MP 21.41	10"	385	388	720	800
197A 197A	MP 21.41 to MP 31.23	10" & 12"	320	500	720	720
197A 197A	MP 31.23 to MP 39.57	12"	320	320		720
197A 197A	MP 39.57 to Calaveras Cement	8n TS:			720	720
		6"	320	0.610	720	720
197B	Las Vinas Station to MP 5.50	8# 6	385	388	720	720
197B	V 19.57 to V 31.24		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>-</b> 16"	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	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
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	<b>67</b> 5	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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Appendix A S.P. No. 463-8 Effective 5/1/75 Page 12/15

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				0.5.0	
220	Meter & Regulator Station (MP 22.01) Davis Meter & Regulator to Dunnigan	8" <u>10</u> " 12"	796	796	800	800
	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

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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.
300B	Kettleman Compressor Station to PLS 6B (MP 436.85)	34"	840	840	890	890 <sup>.</sup>
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) to Moss Landing Power Plant			ć	,	
301A	(MP 24.68) Hollister Meter Station (MP 0.00)	24" & 30"	500	500	500	500
	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		·	• •	• • •	
*301C	(MP 14.02) Hilltown Regulator Station to Harkins Road Meter and Mixer	12"	408	408	<u>600</u>	500
*301F	Station (MP 17.20) Espinosa Road (MP 0.00) to Marina	8" <u>&amp;</u> 12"	313	313	500	500
*301E	Regulator Station (MP 7.94) Crosstie - Monterey #2 (MP 0.00) to	16"	<b>408</b>	. 412	4 <b>00</b>	412
301D	Main 301 (MP 1.02) Anzar Tap Station to Anzar Road	12"	408	408	500	500
301H	Meter & Regulator Station (MP 1.72) Anzar Tap Station to Anzar Road	10"	500 '	500	500	500
302	Meter & Regulator Station Sutter Buttes, W. Butte, Butte	16"	. 500	500	. <b>500</b>	500
302	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) Antioch Terminal to Brentwood	20"	975	975	1000	975
303	Terminal (MP 7.86) Brentwood Terminal to Irvington	36"	720	720	720	720
304	Station (MP 42.83) Tracy Station (MP 0.00) to Lathrop	36"	590	590	600	600
504	Dehydrator & Odorizer Station (MP 11.29)	12"	825	ດາຮ		025
304 306	(MP 11.29) Lathrop Field Collection System Kettleman Compressor Station	<u>. 3" - 12"</u>	825 825	825 825	825 825	825 825
	(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, Line No,	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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	- 11				•	
307	Regulator (MP 16.36) Derrick Road Tap (MP 0.00) to Arbios Regulator Station (MP 4.95)	8" 8"	500 500	500 890	915 915	890 890	
311	Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station						
311	(MP 54.44) Parallel Section (MP 31.97) to	10" & 12" · · ·	700	700	. 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"	573	573	720	720	
314	to MP 24.19 MP 24.19 to MP 29.00	12" 10"	861 260	861 260	890 720	890 720	
314	MP 29.00 to Black Mountain Meter & Regulator Station (MP 43.18)	8" & 10"	260	260	720	720	
314	Tap to Riverside Cement	. 81	260	260	720	720	~
314	Tap to Airbase Road Meter Station	8" <sup>`</sup>	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 Regulator	6"	700	700	960	960	
400 .	California-Oregon Border (MP 0.00) to Tionesta Compressor Station	36"					
400	(MP 24.60) Tionesta Compressor Station to Indian Springs PLS (MP 48.64)	36"	911 911	911 911	911 911	911	
400	Indian Springs PLS (MP 48.64) Indian Springs PLS to Burney Compressor Station (MP 82.33)	36"	911	911	911	911 <sub>.</sub> 911	
400	Burney Compressor Station to MP 104.20	36"	911	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 <u>psig</u>	MAOP	De <b>si</b> gn 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					277
	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				275	215
	PLS (MP 9,96)	12"	300	300	865	865
402	MP 9,96 to Calaveras Cement Tap				005	005
	(MP 38,10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed	·		500	720	720
	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		De <b>si</b> gn ·	Design
Location	(Inches)		MAOD	-	-
LOCACION	(Inches)	psig	MAOP	Press.	Press.
COAST VALLEYS DIVISION	• • •				
Monterey #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					
Regulator Station	10" 12" 16"	313	313	400	400
Monterey (V-18.65 to Carmel V-2.13) Aquajito	• •				•
Road Regulator Station	8" & 10"	313	313	500	· 400
Harkins Road Meter and Mixer Station to			-		
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	Ŭ	010	010	<b>3</b> 000.	5,00
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel	Ŭ	0.4.0	515		500
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	311	313	313	720	
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	<sup>1</sup> 870
DIM-0 I GRAALDE KOUG CO MELLUIAN KOUG MAIN	. 4 a U		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
	•	200	250	120	120
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"	315	338	600	600
Pacific States Steel Feeder	12"	420	420	600 <sup>°</sup>	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	600
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	22 <sup>11</sup>	400	400 ·	400	400
· · · · · · · · · · · · · · · · · · ·			200		-100

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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	0	400	, 100	075	075
Station	<sup>7</sup> 8 <sup>11</sup>	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator	Ū	200	500	075	075
Station	10"	450	. 500	675	675
Kilburn Regulator Station to Yountville	8" & 10"	450	500	675	675
6" Sonoma Tap Line	6"	450	500	675	675
<b>_</b>	• 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				•	
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 <b>"</b> .	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,	168 008 008	200	200	075	F76
20" Feeder	16" 20" 30"	200	200	275	526
Natsonville to River Street Regulator	08 * 208	200 '	202	29722	400
Station	8" & 10"	300 '	303	577**	400
Watsonville to Rob Roy Junction	10"	300	303	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"	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	21	911	911	911	911
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	<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	78,452	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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F		1				<u></u>				· ·							
١ł.		10		P0.00) T								·					
4.	MIL PIT	TAS TE	RIM. UN	N63'80)		100	400	400		+ 12/65		SAN JOSE	.400	400	400	400	TESTED IN DEC. 19
-	KENC	STORFE	<u>† STA.C</u>	1 NG J180 )	6	-100-	-100	400		1 14/22		1 300	1.00	19.2			SAN JOSE DIV FEB,74
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					20	2.50	250	400	180	8/5/69	HENGSDRE	JOSE .	1-180-	100-	<u> </u>	<u>-190</u>	TO R.L. SISLERI
		•	<u> </u>	1	ļ							·					PENN, REG@ SP Border Mir
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# PG ME

DIVISION OR DEPARTMENT FILE NO. SUBJECT 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.

·---- . . .

- 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
ECUTIVE OFFI	CE OR DIVISION GAS OPERATIONS	PAGE NO. 1 EFFECTIVE 4/9/7
SUING DEPAR	GAS SYSTEM DESIGN	REPLACING 1 EFFECTIVE 5/1/7
	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.	Ing Pressures (MAOP), and pipelines, mains and
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	ed by this Standard design procedures for erenced Standard Practices
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	G.O. 112 ed Gas Facilities" and Mains" Mains and Services" Transmission and
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	plicable to the materials as been established as

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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#### 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.

<u>Maximum Operating Pressure</u> (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.

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	<b>\$1</b>	REV.	DATE		DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.
GM							B/M			
SUPV.					PIPELINE - DATA SHEET		DWG. L			
DSGN.				MAOD	OF LINES OPERATING AT OR OVER 20% SHYS		SUPSD			
DWN.				1.8 101	OF THEMAS OF DEGLERAD IT. THE OVER 208 SP10		SUPSD	BY		
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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&ECO.	DRAWING NUMBER	REV.
LINES OPERATING AT OR OVER 20% SMYS		00000	$\cap$
	SHEET 2 OF 30 SHEETS		
-4344 Rev 1-76		MICROFILM	

61

Trans. Line No.		to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP	MAOP	Design Press.	Future Design Press.
NO.	<u></u>		Description		psig	MACP	<u></u>	FICOD.
21	0.00	1.07	Crockett Station to MP 1.07	24" & 26"	400	405	650	675
21	1.07	1.52	MP 1.07 to Herrmann Station	24"	400	675	675	675
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
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	89 0
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
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**
*50	21.62	26.94	Biggs Regulator Station to					
			Richvale "Y"	6" & 8"	250	250	720**	720**
*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
56			Pleasant Creek Field Storage Syst	.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.

61-4344 Rev 1-76

LINES OPERATING

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OR OVER 20% SMYS

SHEET ω 0F **30 SHEETS** MICROFILM

086868

**DRAWING NUMBER** 

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61-4344 Rev 1-76									•		
434	LINES					Nominal					
4	NE	Trans	•		1	Pipe	PG&E		•	Future	
Re	19	Line				Diameter	MOP		Design	Design	
v ⊥	OP ERATING	No.	MP	to MP	Description	(Inches)	psig	MAOP	Press.	Press.	
- 7	<b>R</b> RA										
<b>б</b>	TIL	. 56			Pleasant Creek Field Storage	47 - 07	* ~ ~ ~	3 4 4 6	* • • • •		
	NG	57			System \ McDonald Island Field Storage	4" & 8"	1300	1440	1440	1440	
	AT	57			System	4" - 12"	2160	2160	2160	2160	
	1	57	0.00	7.47	McDonald Island Compressor Statio		2100	2700	2100	2100	
	OR				to PLS	14",16",18"	1025	1025	1025	1025	
	OVER	57	7,47	16,64	PLS to Brentwood Terminal	18"	867	867	867	867	
	ER	57B	0.00	16.46	Brentwood Terminal to McDonald						
	20%				Island	22"	2160	2160	2160	2160	
	%C	65			SP 3 (T176.7) to Los Medanos						
	٨S				Compressor Station	4",6",10"	315	600	600	600	
	SMXS	65			Los Medanos Field Storage System	4"	1000	1000	1000	1800	
		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	20.	400	400	400	400	
		~ ~ TOT	9.00	55.00	Bayshore to San Francisco						
				•	Border Meter Station	20"	180	180	275	400	
		*101	33.68	44.56	San Francisco Meter Station Via						
	SHEET				Bayshore Boulevard to Potrero						
	<b>—</b>				Gas Plant	20"	109	110	275	275	
		*103	0.00	23.55	Hollister Meter Station Regulator						
	-				Station	12"	350	350	670**	500	
		103	23,55	26.63	California Street Regulator Stati	on					
	30 S				To Harkins Road Meter and	1.2"	313	313	670**	500	
	<u>ې</u>	· 105	6.88	23.03	Mixer Station Irvington Station to San Lorenzo	20", 24"	272	272	670**	500	
	CO. 30 SHEETS	; TOQ	0.00	20.03	Regulator Station	26" & 34"	250	250	500	500	
					Regulator Deactor	20 8 94	200	200	500	200	
MIC	D	1									
ROFILM	186868 100 N										
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Exh.C. (Becken)

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	LINES OF	Trans. Line				Nominal Pipe Diameter	PG&E	,	Design	Future Design
	E	<u>No.</u>	MP	to MP	Description	(Inches)	psig	MAOP	Press.	Press.
	OP ERATING	*105	23.03	52.01	San Lorenzo Regulator Station to San Pablo Station	20", 22" 24" & 30"	150	198	275	275
1999 B		*105	0.00	2.03	Oakland Holder Station to	24 0 30	100	170	270	<i>L</i> 1 <i>L</i>
1	AT				Berkeley City Limits (Parallel)	24"	150	198	275	275
	OR	105	0.00	0.18	Baine Avenue Crossover to Line 153	20"	250	250	590	500
1		*105	0.00	0.185						
1. N. W.	OVER				Line 153	22" & 24"	250	250	500	500
		105B	0.00	11.85	Crockett Station to San Pablo					
	20%				Station	24"	400	400	400	400
		107	0.00	13.11	Tracy Station to Livermore					
	SMXS		· · · ·		Junction	22"	500	500	500	720
	SA	107	13.11	31.22	Livermore Junction to Irvington					
					Station	22 <b>"</b>	477	480	500	720
the state		107S	31.22	38.12	Irvington Station to Milpitas					
COLOR.		700		4 = 2		22",24" & 36"	477	477	500	720
1000		108	0.00	4.59	Stanpac 2 to Vernalis Field					
0.000		100			Mixing Station	16"	500	500	720	890
		108	4,59	8.79	Vernalis Field Mixing Station to	7	400	100	500.t.t	<b>7</b> 00++
2014	SHEET 5	108	8.79	16.7	McMullin Ranch Mixer Station	16"	408	408	720**	720**
di la cale	四)	100	0.19	10./	McMullin Ranch Mixer Station to MP 16.7	16"	400	408	720**	720**
	ຕ່ 70	108	16.7	43.5	MP 10.7 MP 16.7 to Las Vinas Station	16"	408 412	408 412	720**	720**
	ଜ	108	43.5	62.20	Las Vinas Station to MP 62.20	16"	412 490	412 490	500	720
a de calor	9 <b>8</b> E	108	43.5 62.20	75.10	MP 62.20 to Sacramento Division	10	490	490	500	720
anĝes ta	ω	700	02.20	/3.10	Gas Load Center	16" & 24"	412	412	500	656
1000		*108	27.10	1.71	E. Hazleton & B Streets Regulator	10 & 24	412	412	500	000
1. (M. 1	SH .	100	27.10	***/**	Station to Stockton Gas Plant	12"	175	185	275	275
10 A 10	SHEETS	109	0.00	43.47	Milpitas Terminal to Sullivan	and a disc	212	- U U	213	فيت لا مناه
	୍   ର		0.00	······································	Avenue Regulator Station	22" & 30"	375	375	400	400
E	DR						0,0		-100	

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**& E CO.** OF 30 SHEETS 086868 MICROFILM

						,						
LINES							Nominal					
NES		Trans	•				Pipe	PG&E			Future	
		Line					Diameter	MOP		Design	Design	
OP ERA'ITI NG		No.	MP	to	MP	Description	(Inches)	psig	MAOP	Press.	Press.	
JRA									-		<u></u>	
E		*109	43_47		52.71	Sullivan Avenue Regulator to						
NO						Potrero Gas Plant	26"	150	150	275	275	
		111	0.00		21.65	Helm Junction to Fresno Junction	12"	650	650	800	720	
АТ		111	21.65		28.05	Fresno Junction to Division Gas						
OR						Load Center	8"	400	400	720	720	
20		111				Raisin City Field Collection						
QU						System	4 "	650	800	800	800	•
OVER	<b>.</b>	111				San Joaquin Field Collection System	3" & 4"	650	800	960	960	
		112				Vernalis Field Collection System	3" - 8"	594	594	800	800	
20%		114	0.00		9,01	West Rio Vista Field to Antioch						
						Terminal	12" & 16"	510	510	800	800	
SMAS		114	9,01		16.59	Antioch Terminal to Brentwood						
M M						Terminal	22"	595	595	595	720	
		114	16,59		28,97	Brentwood Terminal to Dalton Avenue	22"	595	595	59 5	720	
		114	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	
		*116	3,86		6.19	Swingle Junction to V-6.19	16"	500	800 (2)	800	800	
SHEET		*116	6.19		12.89	V-6.19 to Sacramento Gas Plant	8"	500	500	500	720	
<u> </u>	I	*118	0.00		6.09	Division Gas Load Center to Fresno	Ū	000	200	500	, 20	
1 4		~110	0.00	•	0.02	Junction	8"	400	400	500	720	
୍ ଜ		118	0,00		0.66	Division Gas Load Center to Fresno	Ŭ	-200		500	720	
		TTO	0,00		0.00		12"	690	690	720	720	
	8	4710	r or		10 57	HPU Station Fresno Junction to MP 12.57	12"	400	400	720	720	
30 SHEET		*118	5,86		12.57		. 8" T2"				720	
SH .		*118	12,57		73,26	MP 12.57 to Livingston		400	400	500	720 720	
	6	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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DRAWING NUMBER

REV.

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
118	73.26		74.89	Livingston to Collier Road	6"	400	720	72.0	720
118	74.89		83.74	Collier Road to Bradbury Road	-	-200	720	720	720
				Regulator Station	6"	400	400	400	720
118	80.68		83.74	MP 80.68 to Bradbury Road	•			100	720
				Regulator Station	8"	400	720 <sup>(3)</sup>	720	720
118	83.74		84.69	Bradbury Road Regulator Station to			v	720	720
				MP 84.69 (L-215 Tap) Parallel	6" & 8"	500	890	890	890
119	0.00		3.85	Davis Meter Station to Swingle			000	020	0.50
				Junction	12"	792	792	800	800
119	3.85		4.85	Swingle Junction to MP 4.85	12"	500	720	800	720
119	4.85		11.14	MP 4.85 to MP 11.14	12"	500	520	800	720
119	11.14		11.35	MP 11.14 to MP 11.35	10" .	500	520	800	720
119	11.35		16.46	MP 11.35 to N. Sacramento HPU	12"	500	520	800	720
119	0.00		10.17	N. Sacramento HPU to Antelope Meter					
119	0 00			Station	12"	500	500	500	600
119	0.00		8.41	N. Sacramento HPU to Antelope Meter					
119	0 00		0.00	Station	6" & 16"	500	500	500	600
119	0.00 4.6		2.80	N. Sacramento HPU to MP 2.80	24"	180	180	545	545
119	4.6 0.00		5.5	Elm and Traction Avenue Regulator	12"	500	500	500	600
119	0.00		5.25	Sonoma Avenue Regulator and Del Paso Boulevard to Roseville					
				Regulator Station	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	0.00		11.54	Marysville Buttes Meter Station to					,
				Yuba City HPU	6"	485	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

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DRAWING NUMBER

ANTIENDERO CENTR	ד דאוקיפ הטקיטן	Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NATT 54	A ULL VI	123	0.00		13.57	Antelope Meter Station to Lincoln Junction	100				
1 1 1		124	0,00		23.46	Lincoln Junction to 5th & Walnut,	12"	500	500	670**	670**
						Marysville	8"	400	400	720	600
		124	0.00		26.03	Lincoln Junction to Yuba City HPU	16"	600	600	600	600
		124	0.00		3.76	Beale Air Force Base Tap (T 13.31)					000
	775					to MP 3.76	6"	400	400	720	600
		125				Tompkins Hill Field Collection System	m 3" 4" 6"	448	448	720	
5 C C	2	126	0.00		10.57	Tompkins Hill Meter Station to		440	440	720	720
		126	0.00		3.0.00	Union Street Regulator	4"	350	425	720	720
J.1.1	CWAG	120	0.00		10.89	Tompkins Hill Meter Station to					
	S I	300				Union Street Regulator	6"	350	425	720	720
(1) (1) (1)		126	0.00		3.62	Elk River Road Regulator to T 12.38,					
						Line 126 .	10"	167	167	720	720
2002		*126	0.00		0.36	MP 0.00 to Eureka Propane	10"	167	167	720	720
1		126	10.89		12.61	Union Street Regulator to Line 137	6"	167	167	720	
		130a	0.00		0.50	HP Rio Vista Sacramento River	0	107	107	720	720
	1000					Crossing	10"	800	800	800	800
S	T	130B	0.00		0.50	LP Rio Vista Sacramento River					000
SHEET						Crossing	10"	510	510	800	720
Ē		131	0.00		0.71	E. Rio Vista Field	12"	510	685	800	720
		131	0.00		9.19	E. Rio Vista Field to Antioch 10	" & 12"	720(4)	720	720	720
ω (	8					Terminal		510(5)	/20	720	720
٩0 10	m	131	9.19		10.47	Antioch Terminal to MP 10.47	24"	438	438	600	720
ယ္	0	131	10.47		16.87	MP 10.47 to Brentwood Terminal	24"	438	495	600	720
О И	<u>С</u>	131	16.87		50.57	Brentwood Terminal to Irvington		1	"A + " + A	000	720
30 SHEETS						Station	24"	500	525	600	650
	DRA	(4) <sub>The</sub> Coll (5) <sub>The</sub> Coll	coulon	510 p	osig whe	n this section of L-131 is operated in n this section of L-131 is operated in					

AT-1744 Row 1-76

LINES OPERATING AT OR OVER 20% SMYS

MICROFILM

LINES OPERATING	Trans. Line <u>No.</u>	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
AT	131	50.57		57.45	Irvington Station to Milpitas Termir	al 30"	590	595	650	650
IN	132	0.00		35.84	Milpitas Terminal to MP 35.84	24",30",36"	400	400	400	400
	132	35,84		46.59	MP 35.84 to Martin Station	30", 36"	390	390 (6)	400	400
ÀT	132	46.59		51.50	Martin Station to Potrero Plant	24"	145	145	275	275
OR	132	10.32		0.00,	Sierra Vista Avenue to Rengstorff	27	140	145	212	275
찌				1.47	Avenue Station	16" & 24"	400	400	400	400
V0	132	46.59		39.86	Martin Station to Geneva Avenue	20"	1.09	110	27.5	275
OVER	133				Gill Ranch Field Collection System	4",6",8"	300	300	500	720
	134	0,00		21.57	Herndon Junction to MP 21.57	6" & 8"	400	500	720	720
20%	134	21.57		27.04	MP 21.57 to Arbios Meter Station	6"	500	500	720	720
ß	134	27.04		30,50	Arbios Meter Station to MP 30.50	6" & 8"	500	500	720	720
SMYS	134			34.13	Arbios Meter Station to Firebaugh	u u	000	500	,20	,
01					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	-		000		. – •
		Ţ		-	to MP 11.83	4" & 6"	167	167	720	720
	137	3.58		7.37	Ryan Slough Regulator Station to					,
6					Arcata	8"	350	350	720	720
SHEET	138A	0.00		14.94	Helm Tap Station to Helm Junction	16"	<sub>800</sub> (7)	862	862	862
≞ _	138B	0.00		14.71	Helm Tap Station to Helm Junction	20"	700	. 700	800	890
о С С	8 13 <u>2</u>	14.71		22.04	Helm Junction to Elkhorn Station	18"	<sub>800</sub> (7)	865	865	890
1	N 100	20,50		22.04	Elkhorn Station to Burrel Meter					
					Station	18"	650	650	865	720
ωο	138	22.04		38.59	Burrel Meter Station to Adams &					
CO. 30 SHEE					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.

PINES OF	TTMEC OD	Trans Line	-				Nominal Pipe Diameter	PG&E MOP		Design	Future Design
EXE	F 107	No.		to		Description	(Inches)	psig	MAOP	Press.	Press.
OPEKATING AT	יחדר אורי א	138	38.59		49.42	Adams & Elm Meter Station to San Joaquin Division Gas Load Center				<u></u>	
		138	43.58		50.02	T 43.58 to Chestnut & Clay	10",12" & 16"		650	720	720
Ĉ		138	45.10		AC CA	Regulator Station	16"	650	650	720	720
101	1177	138 141E	45.10		46.64	MP 45.10 to Peach Avenue	10"	650	720	720	720
5	10	7470				Thornton Meter Station to E					
OK OVER 208	÷0،د	141W				Thornton Field Collection Syste Thornton Meter Station to W.	•	538	538	800	800
cinc	CMV	*141				Thornton Field Collection Syste N.E.River Island & Walnut Grove	m 3" - 10"	768	768	800	800
ŭ	מ	142N	0.00		14.05	Field Collection System Bakersfield Tap to Bakersfield	6" & 8"	768	768	800	800
-		142S	0.00		9.00	Meter Station Gosford Road Meter Station to	12",16",20"	475	475	720	720
-		*142	9.00		11,47	Brundage Lane Regulator Brundage Lane Regulator to	6" & 10"	600	600	720	720
						Bakersfield Meter Station	8" & 12"	300	300	720	720
		*143				Millar Field Collection System	3" & 4"	792	800	800	800
SHEET 10		144	0.00		3,50	Millar Meter Station to Millar Field	10" & 12"	792			
	P G	145				Maine Prairie Field Collection			796	800	800
0F	& Е	146	0.00		6.00	System Maine Prairie Meter Station to	3", 4", 6"	510	796	800	800
30 S	со <u>.</u>	147	0.00		3.39	Maine Prairie Field Edgewood Road Crossover to San	8"	510	796	800	800
<b>30 SHEETS</b>		148	0.00		17.63	Carlos Regulator Station McMullin Ranch Mixer Station to	20" & 24"	400	400	400	400
<u> </u>						Morgan Road Station	8"	408	408	720	720
	DR/	149				Winters Field Collection System	4" & 6"	750	750	800	800
086868	DRAWING NUMBER										

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-4344 Rev 1-	LINES OPER		Trans. Line No.	MP	to	MP _	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP
1-76	OPERA TI NG		150	.0.00		18.09	Winters Meter Station to Davis Meter Station	6"	750	750
	; AT		151	0.42		14.05	Afton Odorizer Station to Afton			
	F O		152	0.00		0 40	Regulator Station	6"	250	250
	_ R	j	152	0.00		0.42	Afton Field to Afton Odorizer Station	. en	250	250
	OR OVER		153	0.00		18.00	Irvington Station to Marina Boulevar Station	•		420
	20%		*153	18.00		27.89	Marina Boulevard Station to 2nd and	30",32",34	420	420
				-,		-	Market Streets	24" & 30	246	246
	SMXS	2	153				Tap to 50th Avenue Holder Station	16" & 20"	246	246
	SXI		153				Tap to Oakland Holder Station	20 <b>"</b>	246	246
			153				Alvarado Crossover to Line 105	16"	246	250
			*153				Fairway Avenue Crossover to Line 105		150	198
			155 156	0.00		5,72	Durham Field Collection System Durham Field to Durham Field Meter	4"	680	680
							Station	6"	680	680
			158	4.90		13.65	Dunnigan Hills Field to Dunnigan Hills Meter & Regulator	6"	500	564
	HS		*158				Woodland Field Collection System	3" & 4"	500	564
	SHEET	-	159	0.00		0.65	Pleasant Creek Compressor Station			
	11	\$ \$	159	0.65		3,91	to V 0.65 V 0.65 to Pleasant Creek Regulator	4"	975	975
	OF S	ш	159	3.91		6.08	Station Pleasant Creek Regulator Station to	4"	975	975
	õ	8	200				Winters Meter Station	4"	750	750
	<b>30 SHEETS</b>	•	159				Winters Field Collection System	4"	750	750
R	TS									
MICROFILM	80	DRAWING NUMBER								
FILM	08980	ING N								
	3	<b>UMB</b>								
		ER								
		S.			•					

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Future

Design Press.

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Design

Press.

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	T.T.NES OPERATING	Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches) .	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
	ATT	*162	0.00	•	7.73	Tracy Station to Banta Regulator				÷	
	N G	•				Station	. 6" & 8"	365	365	720	720
	AT	162	0.00		6.61	Tracy Station to Holly Road	10"	365	720	720	720
		164				Coalinga Field Collection System	10" & 8"	498	498	865	890
	OR	167	0.00		34.50	E. Beehive Bend Odorizer Station					
	0					to Yuba City HPU	· 12" & 16"	800	800	800	800
	OVER	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					
	ររូរ					Junction	8ª	800	800	800	800
	SMXS	167				Wild Goose Collection System	3" & 4"	800	800	800	800
	101	167	4.12		7.60	Princeton Field Collection					
			,			System	3"	800	800	800	800
		167				Compton Landing Field Collection					
8 B.						System	4" & 6"	800	800	800	800
the second		167				Bounde Creek Field Collection					
						System	4 "	800	800	800	800
		168				River Island Field Collection					
SHEEL						System HP	4", 6", 8"	800 720 (8)	800	800	800
	ې م	168				River Island Field Collection					
						System LP	3" - 8"	698	698	800	800
5		169				Beehive Bend, Willows, Llano					
A						Seco & Perkins Lake Field					
00 00EET0	00					Collection System	3" - 20"	800	800	800	800
		172	0.00		69.81	W. Beehive Bend Meter Station to					
					,	Swingle Junction	18" & 20"	800	800	800	800
_ C	n										
	DRAWING NUMBER	<sup>(8)</sup> The	MOP of	E Line	e 168 sh	all be 720 when operated in conjunc	tion with Line	⊋ 131.			·
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MICROFILM

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LINES OPE	2010年代に、1910年代の「日本の」の	Trans Line No.	• <u>MP</u>	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP _psig	MAOP	Design Press.	Future Design Press.
OPERATING	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	172	69,81		79.51	Swingle Junction to Sacramento Gas Plant	16"	500	520	720	720
ig at		172	0.00		0.60	Crosstie Between Line 172 and	10"				
T OR		172	75.45		9.68	Line 167 Crosstie Between Line 172 and		800	800	800	800
<b>VER</b>	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	*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
N	a la sur	*174				Aurbuckle Field Collection System	2" - 10"	800	800	800	800
20%		176				Roberts Island Field Collection		/			
SMAS		176	0.00		10 05	System	2" - 8"	500	555	800	800
SAI	1.00	176	0.00		18.85	Roberts Island Field to Tracy Station	6" & 8"	500	555	800	800
	317-5 B	177	0.00		0.87	Sacramento Avenue Junction to	0 & 0	500	555		800
			••••		••••	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					
8						Sacramento Avenue Junction	16"	819	819	960	960
SHEET		177	4.75		29.09	Sacramento Avenue Junction to					
<del>'''</del>  .	τ					Corning N. Dome Station	10"	819	819	960	960
μ μ	ດ	177	0.00		2.19	Tap 27.60 to Tap 29.87 Parallel	6" & 8"	819	819	960	960
	р I	177	29.09		37.84	Section Near Corning N. Dome Corning N. Dome Station to Gerber	0. 7 9.	919	012	960	900
	П	±//	29.09		37.04	Compressor Station	12"	819	819	960	960
õ	0	177	37.84		163.04	Gerber Compressor Station to		020	0		500
l ₹						Cummings Creek PLS	12"	819	819	960	960
30 SHEETS	" and the set					5					
_ v I											
0	DRAWING NUMBER										
086868	3										
68	6										
ω	S					·					
	BE										
<b> </b>	20										

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LINES OPERATING AT OR OVER 20% SMYS

13 0F **30 SHEETS** MICROFILM

1 × 1 = 1 = 1	(1) e	~			Nominal				
14.5 T 12.1 A	Tran Line	•			Pipe Diameter	PG&E MOP		Docien	Future
	No.	MP	to MP	Description	(Inches)	psig	MAOP	Design Press.	Design Press.
3 C.C.			<u> </u>		<u>(21101100)</u>	Ford			
5 44 4 <sup>1</sup> 2 4	177	163.04	178.18	Cummings Creek PLS to Tompkins					
and the second secon				Hill Meter & Regulator Sta.	12"	430	430	720	720
	177	178.18	192.29	Tompkins Hill Meter & Regulator					
Contraction				Station to Ryan Slough					
NAME OF CASE				Regulator Station	12 <b>"</b>	350	425	600	600
198 Ta 11	177	37.8	149.18	Crosstie Between Lines 177 and					
1111 N. C. S.				Line 400	12"	819	819	960	960
10000	177	43.87	1.24	Tap to Red Bluff and Diamond	<b>e</b> 10	07.0	~~~	0.50	0.10
43.648a	1-7-7			National	6 <sup>10</sup>	819	819	960	960
10 XIII	177			Rancho Capay Field Collection	4"	819	819	960	960
	179			System Corning Field Collection System	4" 6"	819	819	960	960 960
	180			Kettleman Hills Field Collection	U		010	200	200
	TOO			System	8" - 20"	421	421	500	. 500
10000	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
	$18l_{\rm B}$	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
1000	182	16.77	18.23	V-81 to Shell Chemical Meter					
				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	3" - 8"	125	435	800	800
100	1.00			System Suisun Field Collection System	3'' - 8'' 2'' - 6''	435 435	435 435	800	800
	182			Sursun Liera correction System	2 - 0	- <u>-</u>			000

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LINES OPER		Trans Line No.	- <u>MP</u>	to	<u>MP</u>	Description	Nominal. Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
OPERATING		183	0.00		6,35	Firebaugh Regulator Station to Moffat Field Meter Station	3"	175	320	800	800
ΑT		186	0.00		26.1	Dos Palos Meter Station to Red Top Regulator	3" 4" 6"	500	625	720	720
OR C		186	26.1		29.4	Red Top Regulator Station to Chowchilla Field	2" 3" 4"	500	960	960	960
OVER		187	0.00		22,58	San Ardo Field Meter Station to Jolon Road Regulator Station	6"	313	313	720	720
20% S		187	22.58		65,70	Jolon Road Regulator Station to Harkins Road Meter & Mixer Station	8"	313	313	720	720
SMXS		189	0.00		1.72	Elk River Road Regulator Station to Humboldt Bay P.P.	10"	350	425	720	720
	- ) 第二章 21 15	190	0.00		16.08	Kettleman Compressor Station to Coalinga Nose Storage Field	12" & 16"	2160	2160	2160	2160
		190	16.08		16.22	Coalinga Nose Storage Field to Union Oil Company	16"	2160	2160	2160	2160
8		191	0.00		3,86	Antioch Terminal to Antioch Town Meter Station	30" & 34"	315	600	600	600
SHEET 15	0	191				Antioch Town Meter Station Cross Tie	16"	315	600	600	600
	ה פ	191	3.87		9.93	MP 3.87 to MP 9.93 Via Pittsburg Power Plant	20" & 24"	315	390	600	600
ı   🗝	ח	191	9.93		25.30	MP 9.93 to Reliez Station Road Regulator Station	16" 20" &24"	315	338	600	600
30 SHEETS	3	*191	25.30		29.36	Reliez Station Road Regulator Station to Junction L-191	8" 10" & 12"	268	283	400	400
ETS											

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 P G & E CO.
 DRAWING NUMBER

 SHEET 15 OF 30 SHEETS
 086868

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Trans Line					Nominal Pipe Diameter	PG&E MOP		Design	Future Design
NO.		to	<u></u>	Description	(Inches)	psig	MAOP	Press.	Press.
*191	29.30	5	32,.76	Junction Line 191 to MP 32.76	10"	268	270	400	400
*191	32.70	5	35,83	MP 32.76 to Martinez Meter and					
				Regulator Station	10"	268	268	400	400
*191A				Junction Line 191 to Ardilla and					
				Camino Pablo & Orinda Regulator	•				
				Station	3" 6" & 8"	268	283	400	400
*191B	0.0	C	1.53	Junction Line 191 to Reliez Valley					
				Road Regulator Station	8ª .	268	283	400	400
193				Rice Creek Field Collection System	$2^{n} - 8^{n}$	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	0.0	0	4.39	McMullin Field Dehydrator Station					
				to California Ammonia Company	6"	437	437	960	960
194				McMullin Ranch Field Collection					
				System	2" - 10"	437	437	800	800
195				Rio Vista Field Collection System		800			
				(HP)	2" - 16"	720 (9)	80 <b>0</b>	800	800
*195				Rio Vista Field Collection System					
				(LP)	2" - 16"	510	510	800	800
196	0.0	0	13.45	Las Vinas Station to Isleton					
				Meter Station	8" & 12"	800 (9)	800	800	800
197A	0.2	5	21.41	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	21.4	1	31.23	MP 21.41 to MP 31.23	10" & 12"	320	720(10)	720	720
197A	31.2	3	39,57	MP 31.23 to MP 39.57	12" .	320	320	720	720
197A	39.5	7	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.

AL-L WORLD'

LINES OPERATING AT OR OVER 20% SMYS

SHEET 16 OF 30 SHEETS

MICROFILM

DRAWING NUMBER

086868

LINE OPERATING		Trans Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
L L		197B	0.25	5	5.50	Las Vinas Station to MP 5.50	6"	385	388	720	720
NG.	5	197B	21.47	,	31.24	V 21.47 to V 31.24	ğıı	320	320	720	720
AT.	2	197C	17.44	ł	23.02	Ione Tap to MP 23.02	10"	385	720	720	720
		199				Bunker Field Collection System	3" - 8"	792	796	800	
Ox X	3	200				W. Rio Vista Field Collection	5 - 0	132	790	800	800
AG AO		*200				System (HP) W. Rio Vista Field Collection	2" - 16"	<sub>800</sub> (9)	800	800	800
		200				System (LP) W. Rio Vista Field Collection	2" - 16"	510	510	800	800
202 S02		200				System (30 psig) Liberty Islands Field Collection	3" - 10"	400	510	800	800
SUIC STUC	05					System	4"	800 720 (9)	800	800	800
		200				Lindsay Slough Field Collection System	3" - 10"	800 (9)	868	960	960
		201				Todhunters Lake Field Collection System	2" - 12"	792	960	960	960
s		202	0.00	)	23.72	Grass Valley Tap to Regulator Station near Robin Avenue,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	200	200	500
SHEET		203				Grass Valley Greens Lake Field Collection	6" & 8"	400	720	720	600
17	PG	204				System Cheney Ranch Field Collection	4 <sup>11</sup>	500	800	800	800
0F	ф П	200				System	3" & 4"	500	890	890	890
30 s	0	206			·	Pleasant Creek Tap to Pleasant Creek Compressor Station	12".	975	1440	1440	1440
30 SHEETS		207				Conway Ranch Field Collection System	4", 6", 8"	800	1000	1000	1000
TS Uababa	DR/	(9) <sub>The</sub>	MOP O	f thi	s section	n of line is 720 psig when it is op					1000

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LINE OPERATING AT OR OVER 20% SMYS SHEET

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MICROFILM

Line					Pipe Diameter	PG&E MOP		Design	Future Design
No.	<u>MP</u>	to	MP	Description	(Inches)	psig	MAOP	Press.	Press.
208				Union Island Field to Lathrop					
				Dehydrator Station	12"	825	1000	1000	1000
209				Line 400 to Line 128 at Willows	4 <sup>11</sup>	479	720	720	720
210	0.00		1.40	Rio Vista "Y" to Creed Station	16"	737	800	800	800
210	1.40		25.98	Creed Station to Napa "Y"	ير"16 & 18	650	650	740	720
210	1.40		19.47	Creed Station to Cordelia Regulat	32" <b>* 3</b> *	replace	= with 2	6 * ()	· <u> </u>
		•		Station	32"	650	675	675	675
210	19.47		25.62	Cordelia Regulator to Napa "Y"	10" & 12"	650	<u></u> 650	200-675	- 800 ·
210	0,00		1.36	Rio Vista "Y" to Creed Station	10"	650	650	800	800
210	19.47		32.11	Cordelia Regulator to Herrmann					
~ ~ ~			-	Station	24"	650	675	675	675
210	0.00		3.7	V 27.67 to Exxon Oil Meter					•
010				Station	18"	650	720	720	675
212				Tremont Field Collection System	4" & 6"	792	800	800	800
215	0.00		20.05	Oak Flat Road Meter to West					
			<b>a</b>	Avenue Regulator Station	12"	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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LINES OP	Trans. Line <u>No. MP</u>	to <u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press
OPERATING								
AT	300A 0.00	0.64	Colorado River to Topock					
				30" & 34"	660	700	700	700
	300A 0.64	40.87	Topock Compressor Station to					
AΤ			PIS 1A	34"	867	867	890	890
	300A 40.87		PLS 1A to PLS 2A	34"	815	815	815	815
0R	300A 103.72		PLS 2A to PLS 2AX	34"	688	688	688	688
OVER	300A 130.37	159.33	PLS 2AX to Hinkley Compressor					
뎕			Station	26" & 34"	573	573	573	573
	300A 159.33	203.02	Hinkley Compressor Station to					
20%			PLS 3A	34"	861	861	890	890
	300A 203.02		PLS 3A to PLS 4A	34"	803	817	817	817
SMXS	300A 256.21	299.01	PLS 4A to PLS 5A	34"	736	757	757	757
ຄີ	300A 299.01	353.85	PLS 5A to Kettleman Compressor					
			Station	34"	66 <b>9</b>	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					1
1			Creek	34"	631	631	715	715
	300A 490.65	502.34	PLS 7A to Milpitas Terminal Statio	n 34"	558	558	676	676
¦ _	300B 0.00	0.45	Colorado River to Topock Compresso	r .				
P G	Į		Station	34"	660	660	735	735
8	300B 0.45	40.49	Topock Compressor Station to PLS					
n m		-	lB	34"	867	867	894	894
	300B 40,49	103.51	PLS 1B to PLS 2B	34"	815	821	821	821
6	300B 103.51		PLS 2B to PLS 2BX	34"	688	688	688	688
	300B 130.40		PLS 2BX to Hinkley Compressor					
il 🛛			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 OPERATING	Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP . psig		Design Press.	Future Design Press.
AT A LOCATION OF	ATI	300B	161.02	203.07	Hinkley Compressor Station to					
and a state	NG	<b>D D D D</b>			PLS 3B	34"	861	861	897	897
	AT	300B	203.07		PLS 3B to PLS 4B	34"	803	816	816	816
		300B	256.64	• •	PLS 4B to PLS 5B	34"	736	757	757	757
	OR	300B	299.00	354.02	PLS 5B to Kettleman Compressor					
		300B	254 02		Station	34 "	669	688	688	688 ·
- Constant	OVER	200B	354.02	436.85	FILL FILL FILL FILL FILL FILL FILL FILL					
Sense a		300B	436.85		PLS 6B	34"	840	840	890	890
1000	20%	300B	430.05		PLS 6B to Pacheco Pass PLS	34"	715	715	715	715
0018100		200D	401.00	490,92	Pacheco Pass PLS to PLS 7B Silver Creek					
1000000	SMXS	300B	490.92	502,64	PLS 7B to Milpitas Terminal Station	34" 1 34"	631	631	715	715
2-63,25	રુ	301G	0.00		Hollister Meter Station to Moss	1 34"	600	600(11)	669	669
12.5					Landing Power Plant	24" & 30"	500	500	500	
a luta		301A	0.00	24.84	Hollister Meter Station to Moss	24 a 30	500	500	500	500
11111					Landing Power Plant	20"	396	396	500	500
100 and 100		301B	0.00	14.02	Dolan Road Meter Station to		040	550	500	500
					Hilltown Regulator Station	12"	408	408	600	500
	P C SHEET 20	*301C	14.02	17.20	Hilltown Regulator Station to Harkins Road Meter and Mixer					500
No.	T2 P	*301F	0.00		Station	8" & 12"	313	313	500	500
	(44)	~20TF.	0.00	7.94	Espinosa Road to Marina Regulator					
100	우 <mark>않</mark> 표	*301E	0.00	1.02	Station	16"	408	412	412	412
10.04		301D	0100	1.02	Crosstie - Monterey #2 to Main 301 Anzar Tap Station to Anzar Road	12"	408	408	500	500
10.00	3 CO		0.00		Meter & Regulator Station	10"	500	500	500	
1.2.1	CO. 30 SHEETS	301H	0.00	1.72	Anzar Tap Station to Anzar Road	TO	500	500	500	500
	EET			~~~~~	Meter & Regulator Station	16"	500	500	500	500
						10	500	500	500	500
	DRAWING NUMBER 086868	(11) <sub>R</sub>	evised t	o conform 1	to documented records.					

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

MICROFILM

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	LINES OPER	Trans. Line <u>No.</u>	MP	to	<u>MP</u>	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig		esing Press.	Future Design Press.
and the state of the state of the state of the	OPERATING AT	302				Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk, Moon Bend & Buckeye Field					
a state in the set	OR OR	302	0.00		5.76	Collection System Buckeye Creek PLS to Hershey	2" - 20"	1000	1000	1000	1000
يت إمد دي مدين من ا	OVER	303	0.00		7.95	Junction Antioch Terminal to Brentwood	· 20"	975	975	1000	975
21.02						Terminal	36"	720	720	720	720
	20%	<u>303</u>	7.95		11.97	Brentwood Terminal to Vasco Road	36"	725	793 (lla)	864	864
24 M V	2	303	11.97		20,43	Vasco Road to Dalton Avenue	36"	725	776 (11b		864
Carlot and	SMXS	303	20.43		25,54	Dalton Avenue to Livermore Junctio	n 36"	725	864(llc)	864	864
All South	SX	303	25.54		36.56	Livermore Junction to Sheridan			(1)3	<b>`</b>	
1. No. 24						Road PLS	36"	725	731 (11d		877
10.00	1	303	36.56		42.86	Sheridan Road PLS to Irvington	36"	590	590	600	877
1010		304	0.00		11.29	Tracy Station to Lathrop Dehydrato					
						& Odorizer Station	12"	825	825	825	825
<b>T</b>		304				Lathrop Field Collection System	3" - 12"	825	825	825	825
		306	0.00		43.3	Kettleman Compressor Station to					
10520	ŝ					Dry Creek PLS	20"	840	840	840	840
	F SHEET	306	43.3		70,02	Dry Creek PLS to Morro Bay Power					<b>.</b>
10.000						Plant	20"	650	650	840	840
Constraints.	21 0	307	0.00		16.36	Spreckels Sugar Meter Station to					
10000	<u> </u>					Spreckels Sugar Regulator	8*	500	500	915	890
14-41-01	1	307	12.05		16.92	Derrick Road Tap to Arbios	<b></b>				
	S C					Regulator Station	8"	500	890	915	890
1000	°∣°	311	0.00		54.44	Main 300 (V 180.64A) to Westend				0.50	~~~
	CO. 30 SHEETS					Primary Regulator Station	10" & 12"	700	700	960	890
1000	3										
	DR/	(lla) <sub>T</sub>	he 793.	psig	MAOP of	this Section of L-303 was establis	hed by hydro	ostatic t	est complet	ed on 11	L/23/66.
	õ M										
	086868 MING NU	(11b) <sub>T</sub>	he 776	psig	MAOP of	this Section of L-303 was establis	hed by hydro	ostatic t	est complet	ed on 11	L/26/66.
	DRAWING NUMBER 086868	(llc) <sub>T</sub>	he 864.	psig	MAOP of	this new Section of L-303 was esta	blished by r	nydrostat	ic test com	pleted o	on 11/22/77.
	O.	L (TTA) I	'he 731	psig	MAOP of	this Section of L-303 was establis	hed by gas u	pgrating	on 9/28/78	•	

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LINES OPERATING	Trans Line <u>No.</u>		ţo	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig		esign Press.	Future Design Press.
ATI	311	31.97		38.49	Parallel Section to MP 38.49	12"	700	810	960	890
IG AT	312	0.00		8.00	Line 300A (T 273.27) to Paloma Field Meter Station	8 <sup>11</sup>	736	740	820	820
8	313	0.00		34.4	Lucerne Valley Tap Meter Station					
OR C	314	0.00		24.19	to Permanente Company Meter Hinkley Compressor Station to	8" & 10"	573	573	720	720
OVER					MP 24.19	12"	861	861	890	890
	*314	24.19		29.00	MP 24.10 to MP 29.00	10"	293	293	720	720
20%	*314	29.00		43.18	MP 29.00 to Black Mountain Meter					
					and Regulator Station	8" & 10"	293	293	720	720
SMXS	*314				Tap to Riverside Cement	8"	293	293	720	720
IVS	*314				Tap to Airbase Road Meter Station	8"	293	293	720	720
01	*316				Dutch Slough & River Break Field					
	317				Collection System Chickahominy Field Collection	2" - 12"	800	800	800	800
					System	3"	975	975	975	975
	318				Black Butte Field Collection	•				
	010				System	3 **	911	911·	960	960
	331				Santa Nella Tap to Tri Valley					
SHEET	001				Growers	4" & 6"	500	890	890	890
	334				Poppy Ridge Field	A 17	412	490(12)	800	800
ll ⊾∖l ♥	336				Harte Field Collection System	3"	412	800	800	800
	372	0,00		3.7	Ridgecrest Tap to Ridgecrest	-				
		0.00		2.	Primary Regulator	6"	700	700	960	960
	400	0.00		24.60	California-Oregon Border to	-				
S S	400	0.00		24.00	Tionesta Compressor Station	36"	911	911	911	911
CO. DRAWING NUMBER	(12) <sub>]</sub>	Line 334	is a	a new li.	ne. The 490 psig MAOP was establis	hed by hydro				

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SHEET 22 OF 30 SHEETS

MICROFILM

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LINES OPERATING	Tran Line No.		to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
LILI	400	24.60	48.64	Tionesta Compressor Station to	5				
NG.				Indian Springs PLS	36"	911	911	911	911
AT	400	48.64	82.33	Indian Springs PLS to Burney					
1				Compressor Station	36"	911	911	911	911
OR	400	82.33	104.20	Burney Compressor Station to					
8				MP 104.20	36"	911	911	911	911
OVER	400	104.20	115.26	MP 104.20 to Shingletown PLS	36"	911	915	942	942
	400	115.26	149.18	Shingletown PLS to Gerber					
20%				Compressor Station	26" & 36"	911	911	911	911
	400	149.18	180.77	Gerber Compressor Station to					
SMYS	1			V-180.77	24" & 36"	911	911	911	911
Ω.	400A	180.77	197.83	V 180.77 to Delevan Compresso					
				Station	36"	911	911	911	911
	400B	180.76	197.72	MP 180.76 to Delevan Compress					
				Station	36 "	911	911	911	911
Į –	400	197.72	233.87	Delevan Compressor Station to					
l			· · ·	Buckeye Creek PLS	36"	1040	1040	1040	1040
	400	233.87	298.87	Buckeye Creek PLS to Antioch					0.75
ş				Terminal	26" & 36"	975	975	975	975
SHEET	402	0.00	9.96	Redding-Calaveras Tap to PLS	12"	300	300	865	865
	402	9.96	38.10	PLS to Calaveras Cement Tap	8",10" & 12"	300	300	720	720
ິດ	403	0.00	1.38	Rio Vista "Y" to Creed	- <i>C</i> 11	650 <sup>(13)</sup>		~~~	000
°₽ 8° ₽ ₽				Station	16"	650 .	800	855	800
30 s									
<u>∽</u>	1								

(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.
	ERI	COAST VALLEYS DIVISION					
	OPERATING AT OR OVER 20% SMYS	<ul> <li>Monterey #1 - Harkins Road Meter &amp; Mixer Station to Fig-Frank Streets Regulator Station</li> <li>Monterey #2 - Fort Ord to Fig-Frank Streets Regulator Station</li> <li>Monterey (V-18.65 to Carmel V-2.13) Aquajito Road Regulator Station</li> <li>Harkins Road Meter and Mixer Station to MP 2.45</li> <li>MP 2.45 to MP 3.50</li> <li>MP 3.50 to California Street Regulator Station</li> <li>Salinas Main - Foster Road to San Miguel Avenue</li> <li>DFM-6 Espinosa Road Main from 301-B, V-3.18</li> <li>DFM-7 Union Carbide Main from 187, MP 17.42</li> <li>DFM-8 Paradise Road to Meridian Road Main</li> </ul>	8" & 12" 10" 12" 16" 8" & 10" 8" & 10" 8" 8" 8" 8" 6" 3" 4" & 6"	313 313 313 313 313 313 313 408 313 500	313 313 313 313 313 313 313 500 313 500	500 400 500 500 500 500 720 720 720	400 400 500 500 500 500 500 500 870 500
	PG&ECO. SHEET24 OF 30 SHEETS	<u>COLGATE DIVISION</u> Yuba City HPU Holder to Market Street Regulator Pit Tap to Schohr Ranch Tap to Strain Ranch Dryer <u>DE SABLA DIVISION</u> Butte College Tap Orland Tap from L-177 to Second Stage Regulator	5" & 8" 6" 4" 3" & 4" 6"	135 250 800 400 490	135 250 800 720 490	400 720 800 720 720 720	400 720 800 720 720 720
	DRAWING NUMBER	· · ·					
Active Contractor Section of the				a a star a s	na statististististististististististististist		a ny fan filmen a star filmen a star filmen a star

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Location	Nominal Pipe Diameter (Inches)	PG&E MOP <u>psig</u>	MAOP	Design Press.	Futo Desi Pres
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	60
Lion Oil Company Feeder	12"	315	338	600	60
Nichols Road Tap	4 <sup>11</sup>	315	338	600	60
Pacific States Steel Feeder	12"	420	420	500	50
Warm Springs Feeder	2" & 4"	465	465	500	60
Port Costa Feeder	6"	315	338	600	60
50th Avenue Holder Feeder Off Line 105	16" & 20"	150	198	275	27
Pittsburg Town Feeder	12"	315	338	350	60
Concord Feeder to Alpha Beta Regulator	6" & 8"	315	600	600	60
Oleum Steam Plant Tap	8" 10" 12" 16"	250	250	275	27
San Ramon Feeder	16"	500	500	500	60
Standard Oil Feeder	22"	400	400	400	40
Rodeo Feeder	6" & 8"	204	204	400	40
Concord Feeder	8" 10" 12"	170	170	600	60
Antioch Feeder	6"	315	600	720	72
Danville Feeder	6" 8" lO"	315	338	600	60
Discovery Bay Feeder - From Line 57A to Secondary					
Stage Regulator (Bixler Road)	3" & 4"	867	867	867	86
Discovery Bay Feeder - From Bixler Road Regulator					
to Pt. of Timber Regulator	4" 6" 8"	400	400	400	40
Atlas Road Feeder	8"	400	400	400	40

Exh. C (Becken)

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Futur Desig Press
NORTH BAY DIVISION			<del></del>		
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	4"	490	490	500	720
Sacramento Division Gas Load Center to North Sacramento					
Holder	8" & 12"	260	260	275	275
16" L-108 Tap to Sacramento Boulevard Regulator	10",12",16"	412	412	500	656
L-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"	750	750	800	800
Hunts Feeder Main	6" 4"	500	500	500	800
Fairfield - Knolls Feeder	<u>4</u> "	500	500	500	800
Illinois Street 10" Feeder .	6" & 10"	650 500	675	740	720
Gibson Feeder Main	ć 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

TTNEC ODI	Location	Nominal Pipe Diameter (Inches)	PG&E MOP <u>Psig</u>	MAOP	Design Press.	Future Design Press.
ONTAGAGAO	Sacramento Division (Continued)					
THE AT OR OVER 20% SMYS	American Home Foods Feeder Vacaville Feeder Vacaville - Eldridge to Nut Tree Road Vacaville - Travis to Vacaville Junction Vacaville - SNRR to Elmira Road Anheuser Busch Feeder Fairfield Feeder - Scandia Road - Vaca Tap Fairfield Feeder - Scandia Road - Vaca Tap Robben Road Feeder - Dixon	2" & 4" 6" 3", 4", 6" 3" & 6" 2" & 4" 10" 12" 6"	720 400 400 400 650 675 650 750	720 400 400 400 650 650 650 750	720 400 720 400 400 720 675 740 800	720 400 720 400 720 720 675 740 800
SA	SAN FRANCISCO DIVISION Peninsula Main Hunters Point Power Plant Feeder	16" & 20" 20"	109 145	110 (14 145	la) 275 275	275 275
PG&E CO.	SAN JOAQUIN DIVISION Tranquility Feeder Yosemite Avenue Feeder Snelling Highway Feeder Dixon Dryer Feeder Peach and Central Feeder Clovis Feeder Main Vinewood Avenue Feeder	3" 6" 6" 4" 6" 6" & 12" 4"	650 400 500 650 650 400	800 720 400 500 720 650 720	900 720 400 720 720 720 720	900 720 720 720 720 720 720 720

(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 81 300 300 720 720 Red Bluff District Tap 2" 911 911 911 911

Exh. C (Becken)

\*\*See Paragraph 6

LINES

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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(16)	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	8"	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

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		Nominal				
Location	Length (Feet)	Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
COLGATE DIVISION						
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 <sup>u</sup>	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)

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#### PACIFIC GAS AND ELECTRIC COMPANY STANDARD PRACTICE

EXECUTIVE OFFICE OR DIVISION \_\_

ISSUING DEPARTMENT\_

	STANDARD PRACTICE NO. 463-8
·	PAGE NO. 1 EFFECTIVE 5/1/75
	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.

	S AND ELECTRIC COMPANY.	standard practice no. 463-8
÷ч,	OFFICE OR DIVISION GAS OPERATIONS	page no. <u>2</u> effective $5/1/75$
SUING DEI	OAG CREWENT DESTON	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	rated in accordance with all.
:•	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.	1 pipe is purchased from the
APPLIC		
*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	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.	s and mains operating at or Division and/or Pipe Line
SUPPLEN	MENT	
; . ;	MAOP and DP for each facility.	signating the MOP (PG&E),
APPROVE	ED BY: E. F. Sibley 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

## Exh. A (Grinstead)

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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Trans.		Nominal Pipe				-
Line	1	Diameter	PG&E		<b>D 1</b>	Futur
NO.	Location	(Inches)	MOP psig	MAOD	Design	Desig
		(Inches)	psig	MAOP	Press.	Press
21	Crockett Station (MP 0.00) to	-				
0.7	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				•	
	(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					
2.1	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	<u>89</u> 0
. 21	Napa "Y" (MP 0.00) to MP 18.64	16"	450	500	720	675
21	MP 18.64 to Denman Flat Tap		•	•		•
21	(MP 24.6)	16"	450	500	720	675
21	McDowell Road Tap (MP 34.84) to		•			
21	Petaluma Meter Station (MP 35.86)	· 12"	450	500	593	675
21	Adobe (MP 0.00) to San Rafael HPU			•		
21	Holder Station	16" & 20"	450	500	600	675
21	Adobe (MP 0.00) to San Rafael HPU (MP 21.11)	100			•	
*50	•	12"	450	500	675	675
	5th & Walnut Streets, Marysville			•	• •	-
	(MP 0.00) to Yuba City HPU	<b>• 1</b>				
*50	(MP 2.87)	8 <sup>11</sup>	400	400	720**	720**
	Yuba City HPU to Biggs Regulator	<b>•</b> ••	<b>.</b>	• • •		
*50	Station (MP 21.62)	8.0	250	250	720**	720**
*30	Biggs Regulator Station to Richvale	<b>C U C U</b>				
*50	"Y" (MP 26.94) Richwolo "Y" to Stipling Typetion	6" & 8"	250	250	720**	· 720* *
#30	Richvale "Y" to Stirling Junction	<b>* *</b> * *			•	
FO	(MP 44.87)	6" & 8"	400	400	720**	<b>72</b> 0**
50 56	MP 0.00 to Paradise (MP 7.81)	- 8 <sup>11</sup>	400	720	720	720
56	Pleasant Creek Field Storage System	- 4"	1300	1300	1250	1440
00	Pleasant Creek Field Storage System	8"	1300	1440	1440	1440

\*\*See Paragraph 6

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

Trans. Line	• • • •	Nominal Pipe Diameter	PG&E MOP		Design	Future
No.	Location	(Inches)	psig	MAOP	Press.	Design Press.
· · · · · ·	· · · · · · · · · · · · · · · · · · ·	(21101100)	5019		FICSS.	FLESS.
	McDonald Island Field Storage				•	
57	System	4" - 12"	2160	2160	2160	2160
57	McDonald island Compressor Station	•			-200	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					
• •	(MP 16.64)	1.8"	867	.867	867	867
57B	Brentwood Terminal to McDonald					
··· ·	Island	22"	2160	2160	2160	2160
~1,00	MP.134.5 to Milpitas Terminal	•			•••	
	(MP 150.13)	20 <sup>11</sup> .	400	400	552	552
.101	Milpitas Terminal (MP 0.00) to			•		
	Rengstorff Avenue Station (MP 9.80)	· 36"	400	400	400	400
*101	Rengstorff Avenue Station Via					
۰`	Bayshore to San Francisco Border			•		
* 101	Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via				••	
54	Bayshore Boulevard to Potrero Gas	<b>6</b> .5.11			·	
*103	Plant (MP. 44.56)	20"	109	150	275	275
v,±05	Hollister Meter Station (MP 0.00) to California Street Regulator Station					
	(MP 23,55)	12"	250	250		
103	California Street Regulator Station	12	350	350	670**	500
÷	to Harkins Road Meter and Mixer			•		
· · *	Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San	74	J 13	313	070**	500
• •	Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*105	San Lorenzo Regulator Station to San	-•	200	250		500
	Pablo Station (MP 52.01)	20"	150	198	275	275
*105	Oakland Holder Station (MP 0.00) to				275	275
	Berkeley City Limits (Parallel)					
	(MP 2.03)	24"	150	198	275	275
· · 105	Baine Avenue Crossover (MP 0.00) to		•			
	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					
1050	Pablo Station (MP 11.85)	24"	400	400	400	400
105s	Milpitas Terminal (MP 0.00) to	• • *				
1.07	Irvington Station (MP 6.88)	.20"	465	480	500	720
107	Tracy Station (MP 0.00) to Livermore			<b>15</b> + 7		
: •:	Junction (MP 13.11)	22 <sup>n</sup> .	500 ·	500 .	500	720

\*\*See Paragraph 6

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Exh. A (Grinstead)

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Trans Line No.		Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
107	Livermore Junction to Irvington					
1075	Station (MP 31.22) Irvington Station to Milpitas	22 " ·	477	480	500	720
	Terminal (MP 38.06)	22"	477	500	500	720
. 108	Stanpac 2 (MP 0.00) to Vernalis Field Mixing Station (MP 4.59)	16"	500	500		
108	Vernalis Field Mixing Station to McMullin Ranch Mixer Station	10	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	Las Vinas Station to MP 56.25	16"	490	500	500	720**
108	MP 56.25 to Sacramento Gas Plant			000	200	/20
	(MP 75.10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton					720
109	Gas Plant (MP 1.71) Milpitas Terminal (MP 0.00) to	12"	185	185	275	275
-	Sullivan Avenue Regulator					
	Station (MP 43.47)	22" & 30"	375	375	400	400
*109	Sullivan Avenue Regulator to					
	Potrero Gas Plant (MP 52.70)	26 "	150	150	275	275
111	Helm Junction (MP 0.00) to Fresno					
111	Junction (MP 21.65)	12"	650	650	800	720
بالم عالم اللو	Fresno Junction to Division Gas					
111	Load Center (MP 28.05)	8"	400	400	720	720
111	Raisin City Field Collection System San Joaquin Field Collection System	4"	800	800	800	800
112		3" & 4"	800	800	960	960
114	Vernalis Field Collection System West Rio Vista Field (MP 0.00) to	3" - 8"	594	594	800	800
774	Antioch Terminal (MP 9.01)	308				
114	Antioch Terminal to Brentwood	12" & 16"	510	510	800	800
њт. <u>т</u>	Terminal (MP 16:59)	001				
114	Brentwood Terminal to Dalton Avenue	22"	595	595	595	720
	PLS (MP 28,97)	20.0	505	<b>w</b> + -		
114	Dalton Avenue PLS to Livermore	22"	595	- 595	595	720
	Junction (MP 34.05)	22"	405	405		
*116	Davis Meter Station (MP 0.00) to	42"	495	495	595	720
	Swingle Junction (MP 3.86)	8"	500	E00 .	500	
*116	Swingle Junction to Sacramento Gas	0	500	500	500	800
	Plant (MP 12.89)	8"	500	500	500	200
		0	500	500	. 500	720
**See P	aragraph 6					

\*\*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 Foad Center (MP 0.00)	811	40.0	400	730	
	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	0.	100	100	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1.00	(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					•
• •	Regulator Station (MP 83,74)	б"	400	400	400	400
118	Bradbury Road Regulator Station to					
X * .	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 <sup>-</sup>
119	MP·11.14 to MP 11.35	10"	· 500	520	800	720
119	MP 11.35 to N. Sacramento HPU		~ ~ ~			
•	(MP 16,46)	12"	500	520	800	720
119	N. Sacramento HPU (MP 0.00) to	201	600	500	500	coo (
	Antelope Meter Station (MP 10.17)	12"	500	500	500	600 (
119	N. Sacramento HPU (MP 0.00) to	6".& 16"	500	500	500	600
119	Antelope Meter Station (MP 8.41) N. Sacramento HPU (MP 0.00) to	0 · 6 TO	500	500	500	000
119	MP 2.80	24"	180	180	545	545
119	Elm and Traction Avenue Regulator	<b>D</b> 2				
773	(MP 4.6 to MP 5.5)	12"	. 500	500	50 <b>0</b>	600
119	Sonoma Avenue Regulator and Del Paso				•	
3 1	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."	485	485	720	720
123	Antelope Meter Station (MP 0.00) to					
	Lincoln Junction (MP 13.57)	12 <sup>11</sup>	500	500	670**	670**
124	Lincoln Junction (MP 0.00) to 5th &	0"	400	400	<b>70</b>	coo
104	Walnut, Marysville (MP 23.46)	8"	400	400	720.	600
124	Lincoln Junction (MP 0.00) to Yuba	16"	600	600	600	600 ·
	City HPU (MP 26.03)	TO	600	600	600	600

\*\*See Paragraph 6

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Deșign Press.
124	Beale Air Force Base Tap (MP 0.00)					• I
<b>T-</b> <i>x</i>	(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		250	4.40		
105	(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)		200	772	720	,20
120	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"	167	167	720	720
130A	HP Rio Vista Sacramento River					
	Crossing (MP 0.00 to MP 0.50)	10"	800	800	800	800
130B	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	100	605	<b>60</b> 5	800	000
101	MP 0.71)	12"	685	685	800	800
. 131	E. Rio Vista Field (MP 0.00) to Antioch Terminal (MP 9.19)	10" & 12"	. 800	800	800	800
131	Antioch Terminal to MP 10.47	24"	438	438	600	720
131	MP 10.47 to Brentwood Terminal		100	100	900	100
	(MP 16.87)	24"	438	495	600	720
131	Brentwood Terminal to Irvington			•		
•	Station (MP 50.57)	24"	500	525	600	650
131	Irvington Station to Milpitas	• •				
	Terminal (MP 57.45)	30"	595	595	650	650
132	Milpitas Terminal (MP 0.00) to					
	Martin Station (MP 46.59)	24" 30" 36"	400	400	. 400	400
132	Martin Station to Potrero Plant	248	145	145	225	245
100	(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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Trans. Line		Nominal Pipe Diameter	PG&E MOP		Design	Future Design
NO.	Location	(Inches)	psig	MAOP	Press.	Press.
104	Arbigg Materia Station to MD 20 50		500	500		
134 134	Arbios Meter Station to MP 30,50 Arbios Meter Station to Firebaugh	6" & 8"	. 500	500	720	720
3.0 %	Regulator Station (MP 34,13)	3" & 4"	500	500	720	720
136	Ord Bend Meter Station (MP 0.00) to	5 a 2	500	500		720
	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	•			
	(MP 3.58) to Arcata (MP 7.37)	· 8"	350	350	720	720
138	Helm Tap Station (MP 0.00) to Helm	101				
<b>1</b> 38	Junction (MP 14.94)	10"	500	500	650	650
1.28	Helm Tap Station (MP 0.00) to Helm	201	700	200		
138	Junction (MP 14.71) Helm Junction to Elkhorn Station	20" ·	700	700	800	890
T10	(MP 20.50)	18 <sup>4</sup> -	7,00	865	865	000
138	Elkhorn Station to Burrel Meter	10	7,00	600	605	890
700	Station (MP 22.04)	··18"	650 <sup>.</sup>	650	865	720
138 <sup>.</sup>	Burrel Meter Station to Adams & Elm		000	050		720
	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	44 - 64	<b>F00</b>			
141w	Field Collection System Thornton Meter Station to W. Thornton	4" & 6"	538	538	800	800 -
TATM	Field Collection System	3" - 10"	768	760	000	000
*141	N.E. River Island & Walnut Grove	3 - 10"	/00	768	800	800
. T-I T	Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield	u u u	,00	700	000	000
	Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
142S	Gosford Road Meter Station (MP 0.00)				•	180
I	to Brundage Lane Regulator					
	(MP 9.00)	6" & 10"	600 <sup>°</sup>	600	720	720
*1.42	MP 9.00 to Bakersfield Meter		•		8	
	Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4" ·	796	800	800	800
•	•	•				•

\*\*See Paragraph 6

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Trans.	<u>.</u>	Nominal Pipe	PG&E			
Line	, · ·	Diameter			Dogion	Future
No.	Location	(Inches)		MAOD	Design	Design
	Hocación	(Tucues)	psig	MAOP	Press.	Press.
144	Millar Meter Station (MP 0.00) to		•	,		•
~~~ <b>4</b>	Millar Field (MP 3.50)	10" & 12"	· 796	796	000	000
145	Maine Prairie Field Coll. System	3" 4" 6"	796		800	800
145	Maine Prairie Meter Station	540	190	. 796	800	800
140	(MP 0.00) to Maine Prairie	•	•			
	Field (MP 6.00)	8 <sup>'1</sup>	700			
147	· · · · · · · · · · · · · · · · · · ·	. 0	796	796	800	800
147	Whipple Road Crossover (MP 0.00) to					-
	San Carlos Regulator Station	· · · · · · · · · · · · · · · · · · ·				
1 40	(MP 3,39)	20" à 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"	<sup>-</sup> 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					•••
	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" ·	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>-,</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" & 4"	500 ·	564	800	800
159	Pleasant Creek Compressor Station	,	• • •	•		
	(MP 0.00) to V 0.65	4" <sup>*</sup>	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator					210
	Station (MP 3.91)	4"	975	975	1000	975
159	Pleasant Creek Regulator Station to	•				2,0
	Winters Meter Station (MP 6.08)	4º '	750	750	`800 <sup>°</sup>	800 .
159	Winters Field Collection System	-4 <sup>n</sup>	· 750	750	800	800
	· · · · · · · · · · · · · · · · · · ·	-			0,0	000

\*\*See Paragraph 6

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Trans. Line	. :	Nominal Pipe Diameter	PG&E MOP		Design	Future Design	t
No.	Location	(Inches)	psig	MAOP	Press.	Press.	
*162	Tracy Station (MP 0.00) to Banta Regulator Station (MP 7.73)	.6 <sup>n</sup> & 8 <sup>n</sup>	365	365	720	720	
162	Tracy Station to Byron Road (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						•
167	(MP 34.50) Wild Goose Field Meter (MP 0.00) to	12" & 16"	800	800	800	800	
160	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	200	
167	Wild Goose Collection System	3" & 4" .	800	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	5	000	000	000	800	
107	System	4" & 6"	800	800	800	800	
167	Bounde Creek Field Collection System	4 u 4 u	800	800	800	800	
168.	River Island Field Collection System	4" 6" 8"	800	800	800	800	
168	River Island Field Collection System	1 0 0	000	000	000	000	-
	LP	3" - 8"	698	698	800	800	۰_
169 <sub>.</sub>	Beehive Bend, Willows, Llano Seco, & Perkins Lake Field Collection		·				
172	System W. Beehive Bend Meter Station	3" - 20"	800	800	800	800	
	(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			
170	& 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 <sub>.</sub>	Line 123 (MP 0.00) (V 6.51) to	4 <sup>11</sup> 6 <sup>11</sup> 8 <sup>11</sup>	500	500		-	
4778	Auburn Regulator Station (MP 17.56)	2" - 10"	500	500	720	720	
*174 176	Arbuckle Field Collection System Roberts Island Field Collection	2" = 10"	800	800	800	800	
	System	2" <b>-</b> 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)		555	555	800	800	
-	to Grapeway Regulator Station (MP 0.87)	10"	819	819	960	960	

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Corning N. Dome Station (MP 29.09)	10"	819	819	960	960
177	Tap 27.60 (MP 0.00) to Tap 29.87 (MP 2.19) Parallel Section Near				060	
177	Corning N. Dome Corning N. Dome Station to Gerber	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 Station to Ryan Slough Regulator	12"	430	430	720	720
177	Station (MP 192.26) Crosstie Between Lines 177 (T 37.8)	12"	350	442	600	600
177	and Line 400 (V 149.18) Tap (V 43.87) to Red Bluff and	12"	819	819	960	960
477	Diamond National (MP 1.24)	6"	819	819	960	960
177	Rancho Capay Field Coll. System	4"	819	819	960	960
180	Kettleman Hills Field Coll. System	8" - 20"	421	421	500	500
181	Soap Lake Meter Station (MP 0.00) to V 1.56	10"	300	300	400	400
18 <b>1</b>	V 6.19 to Watsonville Meter Station (MP 20.15)	10" & 12"	300	303	400	400
181	Anzar Road Meter and Regulator (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" <b>-</b> 12"	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun Junction Meter Station (MP 18.87)	12"	435	435	600	000
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800 800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
182	Firebaugh Regulator Sta. (MP 0.00)	2 - 0	435	455	800	800
102	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)	-*	590	550		500
#	to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

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25		Nominal				
Trans:		Pipe	PG&E			Future
Line	and the second	Diameter	MOP		Design	
No.	Location	(Inches)		M3.0D	-	Design
NO.	hocación	(THOHES)	<u>psig</u>	MAOP	Press.	Press.
187	San Ardo Field Meter Station					
101	(MP 0.00) to Jolon Road Regulator					
	Station (MP 22.58)	6 <sup>11</sup>	212	212	070	050
187	Jolon Road Regulator Station to	0	313	313	870	870
TOY	Harkins Road Meter & Mixer Station					
۰:	(MP 65.70)	8"	212	272	<b>7</b> 00	-
189	· · · · · · · · · · · · · · · · · · ·	. 8"	313 '	313	720	720
TO 2	Elk River Road Regulator Station					
	(MP 0.00) to Humboldt Bay P.P.	10"	250 -	440		
7.00	(MP 1.72)	10	350	442	720	720
190	Kettleman Compressor Station					
	(MP 0.00) to Coalinga Nose Storage	1011 . 161				
100	Field (MP 16.08)	12" & 16"	<u>2160</u>	2160	2160	2160
190	Coalinga Nose Storage Field to	3.6.11	0.1.50			
10'i	Union Oil Company (MP 16.22)	16"	2160	2160	· 2160 <sup>.</sup>	2160
191	Antioch Terminal (MP 0.00) to Los	0.011 0.44				
101	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
*191	Reliez Station Road Regulator	01101101				
*191	Station to MP 29.36	8" 10" 12"	268	283 ·	400	400
×191	Junction Line 191 (MP 29.36) to MP 32.76					•
4101		10"	268	270	400	40 <u>0</u>
*191	MP 32.76 to Martinez Meter and	101	0.00	<b>A</b> 6 6	· • • •	
	Regulator Station (MP 35.83)	10"	268	268	400	400
*191A	Junction Line 191 to Ardilla and Cámino Pablo & Orinda Regulator					
		3" 6" 8"		0.00		
<b>#101</b> D	Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley	0.11	0.00			
102	Road Regulator Station	8" 011 011	268	283	400	400
193 193 <sup>.</sup>	Rice Creek Field Collection System Malton Field Collection System	2" - 8" 4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North	4" 6" 8"	819	960	960	960
193	Collection System	с и	010	010 ·		
194	McMullin Ranch Mixer (MP 0.00) to	· 6"	819	819	960	960
174	MP 2.83	8" & 10"	4.24	100		
194	McMullin Field Dehydrator Station	0. 8 10.	437	437	800	800
T 24	(MP 0.00) to California Ammonia		•			
•	Company (MP 4.39)	C II	405	100	0.50	
194	McMullin Ranch Field Collection	6"	437	437	960	960
	System	2" & 10"	107	4.5.5	000	
195	Rio Vista Field Collection System	2 & LU	437	437	800	800
<i>•••</i>	(HP)	2" <b>-</b> 16"	200	900	900	000
	(*** )	<b>4 -</b> 10	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					
	(IP)	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 <b>"</b>	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>-</b> 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
	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	1.611	650			· · ·
~ * *	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	204	<b>650</b>	686	6 B F	<i></i>
	Station (MP 19.47)	32"	650	675	675	675
210	Cordelia Regulator to Napa "Y"	701 - 101	650	650		~~~
010	(MP 25,62)	10" & 12"	650	650	800	800
210	Rio Vista "Y" to Creed Station	100			~~~	
010	(MP 1.36)	10"	650	650	800	800
210	Cordelia Regulator to Herrmann	0.44	<b>650</b>	<i></i>		
030	Station	24"	650	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil	100	650	-	700	Car
,	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.
	· · · · · · · · · · · · · · · · · · ·		<u></u>			
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					
	(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	Tópock 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

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Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Creek (MP 490.92)	34"	631	631	715	715
300B	PLS 7B to Milpitas Terminal Station (MP 502.64)	3'4"	600	669	669	669
301G	Hollister Meter Station (MP 0.00) to Moss Landing Power Plant				,	
301A	(MP 24.68) Hollister Meter Station (MP 0.00)	24" & 30"	500	500	500	500
	to Moss Landing Power Plant (MP 24,84)	20" .	3,96	396	500	500
301B	Dolan Road Meter Station (MP 0.00) to Hilltown Regulator Station		400	40'0		
*301C	(MP 14.02) Hilltown Regulator Station to Harkins Road Meter and Mixer	12"	408	408	<u>600</u>	500
*301F	Station (MP 17.20) Espinosa Road (MP 0.00) to Marina	8" & 12"	313	313	500	500
*301E	Regulator Station (MP 7.94) Crosstie - Monterey #2 (MP 0.00) to	16"	408	412	4 <b>0</b> 0	412
301D	Main 301 (MP 1.02) Anzar Tap Station to Anzar Road	12"	408	408	500	500
301H	Meter & Regulator Station (MP 1,72) Anzar Tap Station to Anzar Road	10"	500 '	500	.500	500
302	Meter & Regulator Station Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk &	16"	. 500	500	500 <sub>.</sub>	500
302	Buckeye Field Collection System Buckeye Creek PLS (MP 0.00) to	2" 20"	1000	1000	1000	1000
303	Hershey Junction (MP 5.76) Antioch Terminal to Brentwood	20"	975	975	1000	975
303	Terminal (MP 7.86) Brentwood Terminal to Irvington	36"	720	720	720	720
304	Station (MP 42.83) Tracy Station (MP 0.00) to Lathrop	36"	590	590	600	600
	Dehydrator & Odorizer Station (MP 11.29)	12"	825	825	.* 825	825
304 306	Lathrop Field Collection System Kettleman Compressor Station	3" - 12"	825	825	825	825
	(MP 0.00) to Dry Creek PLS (MP 43.3)	20"	840	840	840	840

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Trans, Line No,	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design - Press,	Future Design 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					•	
307	Regulator (MP 16,36) Derrick Road Tap (MP 0.00) to	8"	500	500	915	890	
311	Arbios Regulator Station (MP 4.95) Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station	.8"	500	890	915	890	
311	(MP 54,44) Parallel Section (MP 31,97) to	10" & 12" · · ·	700	700	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	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	· 81	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	80Ó	
317	System	3"	975	975	975	975	
318	Black Butte Field Collection System	3"	911	911	960	960	
372	Ridgecrest Tap to Ridgecrest Primary	<b>6</b> "		•			
400 .	Regulator California-Oregon Border (MP 0.00) to Tionesta Compressor Station		700	700	960	960	
400	(MP 24.60) Tionesta Compressor Station to	36"	911	911	911	911	
400	Indian Springs PLS (MP 48.64) Indian Springs PLS to Burney	36"	911	911	911	911	
400	Compressor Station (MP 82,33) Burney Compressor Station to	36"	911	911	911	911	·
400	MP 104.20 MP 104.20 to Shingletown PLS	<b>36"</b>	911	911	911	911	
400	(MP 115.26) Shingletown PLS to Gerber Compressor	36"	911	915	942	942	
400	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					
	(MP 38,10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed					.=0
	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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Exh. A (Grinstead) 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		De <b>si</b> gn ·	Design
Location	(Inches)		MAOD	-	-
LOCACION	(Inches)	psig	MAOP	Press.	Press.
COAST VALLEYS DIVISION	• • •				
Monterey #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					
Regulator Station	10" 12" 16"	313	313	400	400
Monterey (V-18.65 to Carmel V-2.13) Aquajito	• •				•
Road Regulator Station	8" & 10"	313	313	500	· 400
Harkins Road Meter and Mixer Station to			-		
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	Ŭ	010	010	<b>.</b>	5,00
Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel	Ŭ	0.4.0	515		500
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	311	313	313	720	
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	<sup>1</sup> 870
DIM-0 I GRAALDE KOUG CO MELLUIAN KOUG MAIN	. 4 a U		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
	•	200	250	120	120
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"	315	338	600	600
Pacific States Steel Feeder	12"	420	420	600 <sup>°</sup>	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	600
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	22 <sup>11</sup>	400	400 ·	400	400
· · · · · · · · · · · · · · · · · · ·					-100

Exh. A (Grinstead) 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	0	400	500 7	075	675
Station	/ 8n	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator	U	450	500	075	075
Station	10"	450	. 500	675	675
Kilburn Regulator Station to Yountville	8" & 10"	450	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				•	
Tranquility Feeder	3 "	800	800	900	900
Yosemite Avenue Feeder	. 6"	400	720	720	720
Line 300A to California-Portland Cement Company	311	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 <sup>°</sup>	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 ·
Ailpitas Terminal to PLS #7, Kings Road,		<b>.</b>			
20" Feeder	16" 20" 30"	200	200	275	526
Vatsonville to River Street Regulator					
Station	8" & 10"	300	303	577**	400
Atsonville 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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	Nominal			•	
	Pipe	PG&E		- •	Future
	Diameter	MOP		Design	Design
Location	(Inches)	psig	MAOP	Press.	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"	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>`</b> 400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

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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 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

## 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

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