State of California
State Energy Resources Conservation and Development Commission

In the Matter of:	)	Docket # 09-AFC-04
	)	Exhibit 412
Oakley Generating Station	)	Pipeline Testimony of
	)	Robert Sarvey
	)	Footnote # 6
_____	)	

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

http://www.cpuc.ca.gov/NR/rdonlyres/98DC029C-6A77-4AB4-9E3B-3721A004F28F/0/01MAOPValidationReport_final_March152011.pdf

Page 16, Appendix A page 13, 14 ,15

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

STEPHEN L. GARBER
JONATHAN D. PENDLETON
Pacific Gas and Electric Company
Law Department
77 Beale Street, B30A
San Francisco, CA 94105
Telephone: (415) 973-2916
Facsimile: (415) 973-5520
E-Mail: J1PC@pge.com

JOSEPH M. MALKIN
Orrick, Herrington, & Sutcliffe LLP
The Orrick Building
405 Howard Street
San Francisco, CA 94105
Telephone: (415) 773-5705
Facsimile: (415) 773-5759
Email: jmalkin@orrick.com

Attorneys for
PACIFIC GAS AND ELECTRIC COMPANY

March 15, 2011

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Ratemaking Mechanisms	R.11-02-019 (Filed February 24, 2011)

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

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.[1]

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

[1] 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.[2]

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)).[3] Section 619(c) provides for the determination of the MAOP of a pipeline segment based on the highest

---

[2] 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.

[3] 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.[4] Both PHMSA and CPUC regulations establish recordkeeping obligations with specificity in various areas,[5] 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.[6]

---

[4] 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 had somewhat more specific recordkeeping requirements. For example, 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 deleted this and other specific record maintenance provisions in favor of the general provision that remains in the GO today.

[5] *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.

[6] 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."[7] 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.[8] 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

---

[7] *See* GO 112, § 104.3 (adopted December 28, 1960).

[8] *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.

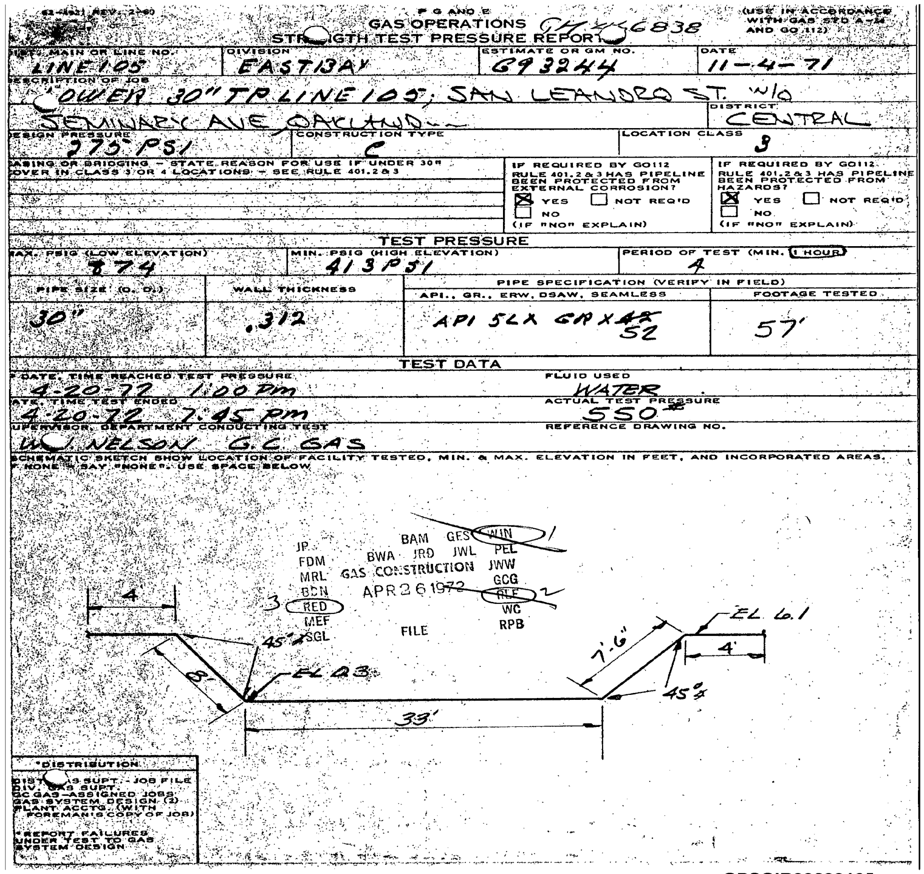
PG&E's MAOP validation effort is divided into three phases, outlined below.

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:



P G AND E
GAS OPERATIONS
STRENGTH TEST PRESSURE REPORT

(USE IN ACCORDANCE WITH GAS STD A-34 AND GO 112)

MAIN OR LINE NO.	DIVISION	ESTIMATE OR GM NO.	DATE
LINE 105	EAST BAY	693244	11-4-71

DESCRIPTION OF JOB: LOWER 30" TP LINE 105; SAN LEANDRO ST. W/O SEMINARY AVE OAKLAND

DISTRICT: CENTRAL

DESIGN PRESSURE	CONSTRUCTION TYPE	LOCATION CLASS
275 PSI	C	3

CASING OR BRIDGING – STATE REASON FOR USE IF UNDER 30" COVER IN CLASS 3 OR 4 LOCATIONS – SEE RULE 401.2 & 3

IF REQUIRED BY GO112 RULE 401.2 & 3 HAS PIPELINE BEEN PROTECTED FROM EXTERNAL CORROSION? [X] YES [ ] NOT REQ'D [ ] NO (IF "NO" EXPLAIN)

IF REQUIRED BY GO112 RULE 401.2 & 3 HAS PIPELINE BEEN PROTECTED FROM HAZARDS? [X] YES [ ] NOT REQ'D [ ] NO (IF "NO" EXPLAIN)

TEST PRESSURE

MAX. PSIG (LOW ELEVATION)	MIN. PSIG (HIGH ELEVATION)	PERIOD OF TEST (MIN. 1 HOUR)
474	413 PSI	4

PIPE SPECIFICATION (VERIFY IN FIELD)

PIPE SIZE (O.D.)	WALL THICKNESS	API., GR., ERW, DSAW, SEAMLESS	FOOTAGE TESTED
30"	.312	API 5LX GR X52	57'

TEST DATA

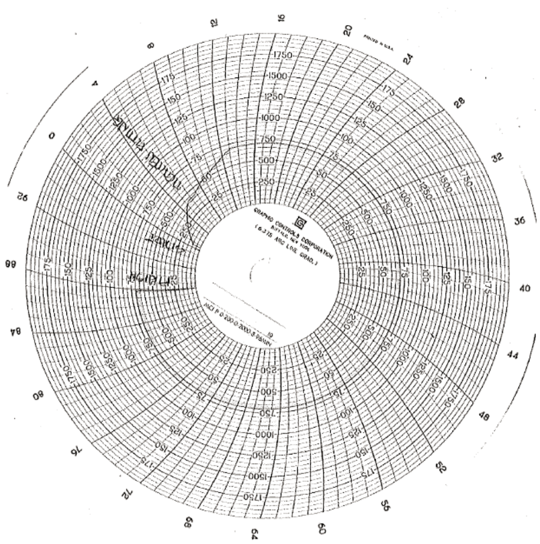
DATE, TIME REACHED TEST PRESSURE: 4-20-72 1:00 PM
FLUID USED: WATER
DATE, TIME TEST ENDED: 4-20-72 7:45 PM
ACTUAL TEST PRESSURE: 550#
SUPERVISOR, DEPARTMENT CONDUCTING TEST: W. J. NELSON G.C. GAS
REFERENCE DRAWING NO.

SCHEMATIC SKETCH SHOW LOCATION OF FACILITY TESTED, MIN. & MAX. ELEVATION IN FEET, AND INCORPORATED AREAS. IF NONE SAY "NONE". USE SPACE BELOW

*DISTRIBUTION
DIST. GAS SUPT. – JOB FILE
DIV. GAS SUPT.
GC GAS – ASSIGNED JOBS
GAS SYSTEM DESIGN (2)
PLANT ACCTG. (WITH FOREMAN'S COPY OF JOB)
*REPORT FAILURES UNDER TEST TO GAS SYSTEM DESIGN

GPSOIR00200165

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 pressures. The Commission's D.73223 (October 24, 1967) required all California gas 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:

PIPELINE INFORMATION

MAIN 101 DATE OF SURVEY 4-20-68
Revised 3-1-69
Sheet 1 of 4

SECTION	YEAR INSTL.	PHYSICAL CHARACTERISTICS O.D.	W.T.	GRADE	J.F.	MAOP PSIG	HOOP STRESS % SMYS	TEST DATA DATE	MEDIUM	PRESS.
MP 0.00-MP 2.30	1965	36	.350	API 5L X 52	1.00	400	40	1965	Water	970
MP 2.30-MP 2.33	1956	34	.344	API 5L X 52	1.00	400	38	1956		Leak
MP 2.33-MP 2.36	1963	36	.422	API 5L X 52	1.00	400	33	1963	Water	1080
MP 2.36-MP 2.41	1956	34	.438	API 5L X 52	1.00	400	30	1956		Leak
MP 2.41-MP 2.46	1966	36	.438	API 5L X 52	1.00	400	32	1966	Water	1080
MP 2.46-MP 2.53	1963	36	.422	API 5L X 52	1.00	400	33	1963	Water	1050
MP 2.53-MP 3.11	1965	36	.350	API 5L X 52	1.00	400	40	1965	Water	970
MP 3.11-MP 3.24	1956	34	.375	API 5L X 46	1.00	400	39	1956		Leak
MP 3.24-MP 3.29	1965	36	.350	API 5L X 52	1.00	400	40	1965	Water	970
MP 3.29-MP 3.33	1963	36	.438	API 5L X 52	1.00	400	32	1963	Water	1010
MP 3.33-MP 9.80	1965	36	.350	API 5L X 52	1.00	400	40	1965	Water	970
9.80-MP 10.64	1965	36	.350	API 5L X 52	1.00	250	25	1965	Water	970
10.64-MP 10.85	1958	30	.3125	API 5L X 42	1.00	250	29	1959	Water	800
MP 10.85-MP 11.46	1929	20	.250	PG&E Spec. (1)	.80	250	38	1929		Leak
MP 11.46-MP 11.75	Under 20% SMYS.									
MP 11.75-MP 11.88	1958	30	.3125	API 5L X 42	1.00	250	29	1959	Water	800
MP 11.88-MP 12.69	1929	20	.250	PG&E Spec. (1)	.80	250	38	1929		Leak
MP 12.69-MP 13.51	Under 20% SMYS.									
MP 13.51-MP 14.40	1929	20	.250	PG&E Spec. (1)	.80	250	38	1929		Leak
MP 14.40-MP 14.57	1956	20	.250	API 5L GRD.B	1.00	250	29	1956		Leak
MP 14.57-MP 14.95	1929	20	.250	PG&E Spec. (1)	.80	250	38	1929		Leak
MP 14.95-MP 15.73	1955	20	.3125	API 5L GRD.B	1.00	250	23	1955		Leak

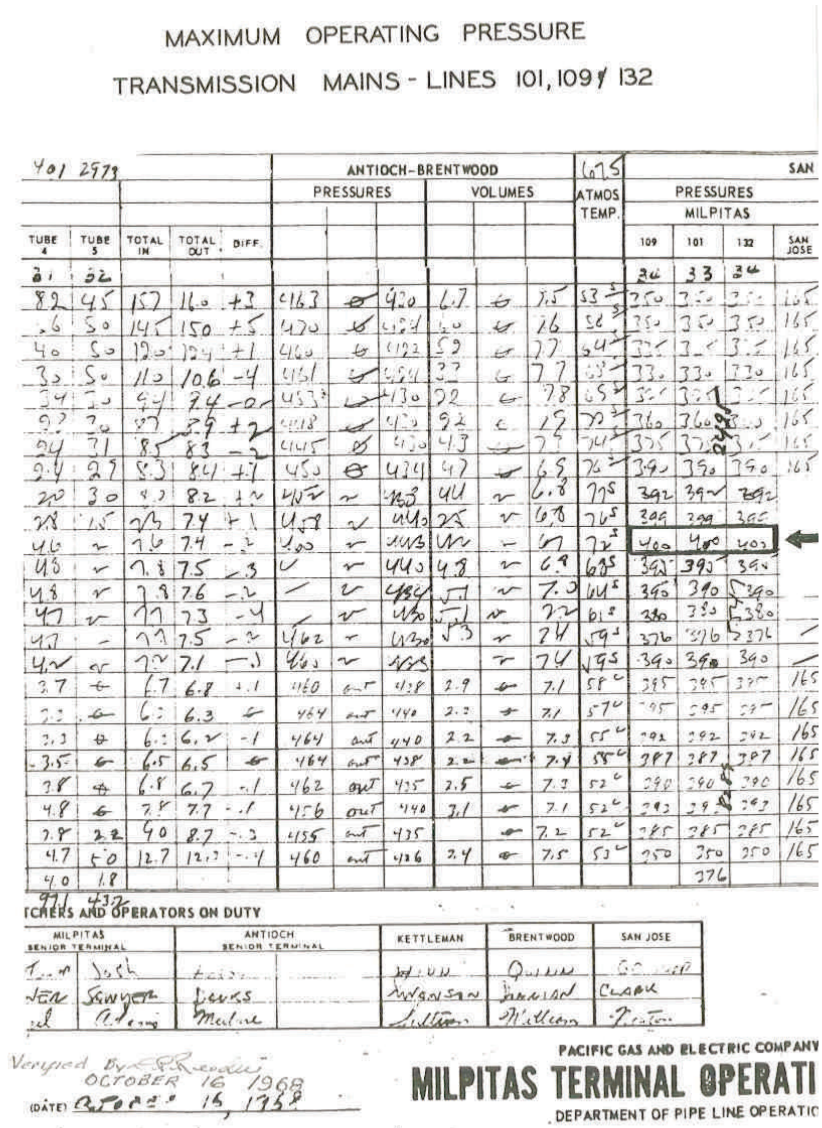
API - American Petroleum Institute
MP - Mile Post
V - Valve
MAOP - Maximum Allowable Operating Pressure (GO 112-B, page 4)
PSIG - Pounds per Square Inch Gauge
SMYS - Specified Minimum Yield Strength of pipe
JF - Joint Factor for longitudinal weld in pipe

(1) PG&E Spec. single submerged arc, 33,000 SMYS.

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

TRANSMISSION MAINS - LINES 101, 109 & 132

ANTIOCH-BRENTWOOD — PRESSURES — VOLUMES — ATMOS TEMP. — PRESSURES MILPITAS — SAN

TUBE 4 | TUBE 5 | TOTAL IN | TOTAL OUT | DIFF. | 109 | 101 | 132 | SAN JOSE

DISPATCHERS AND OPERATORS ON DUTY

MILPITAS SENIOR TERMINAL | ANTIOCH SENIOR TERMINAL | KETTLEMAN | BRENTWOOD | SAN JOSE

Verified By [illegible] OCTOBER 16 1968

(DATE) October 16, 1968

PACIFIC GAS AND ELECTRIC COMPANY

MILPITAS TERMINAL OPERATI

DEPARTMENT OF PIPE LINE OPERATIC

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:

MILES OF PIPE RECORDS BY INSTALLATION DATE

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 Section 619(c) Documentation	**90%**	**97%**	**93%**	**92%**
		92%		

* 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.[9] 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. 2011 Hydro Testing Or Pipe Replacement

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:

/ / /

/ / /

/ / /

[9] 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.

Route No	# of Tests*	Miles Targeted	Pipe Miles to be Tested/ Replaced in 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
L-191	2	3.95	7.37	Hydro test two sections 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
L-301G	1	0.02	0.61	Hydro test one section 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
SP - 3	2	0.49	5.75	Hydro test two sections 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. Other Field Actions

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.[10]

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

---

[10] *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.[11]

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

[11] 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:

/ / /

/ / /

/ / /

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	• Core residential and small business customers curtailed 20 - 30 days/yr • 20,000 – 50,000 people affected (7,000 – 15,000 accounts) • Noncore curtailed 35 – 40 days/yr
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	• Core residential and small business customers curtailed 10 – 35 days/yr • 85,000 - 170,000 people affected (28,000 - 57,000 accounts) • Noncore (including refineries and electric generation) curtailed significantly 20 – 70 days/yr

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

STEPHEN L. GARBER
JONATHAN D. PENDLETON
Law Department
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94105
Telephone: (415) 973-2916
Facsimile: (415) 973-5520
E-Mail: J1PC@pge.com

/s/ Joseph M. Malkin

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

Attorneys for
PACIFIC GAS AND ELECTRIC COMPANY

March 15, 2011

Attachment A

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Ratemaking Mechanisms	R.11-02-019 (Filed February 24, 2011)

DECLARATION OF STEVEN H. PHILLIPS

I, STEVEN H. PHILLIPS, do declare:

1. 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.

9. 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.

10. 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 15th day of March 2011, at San Francisco, California.

/s/
STEVEN H. PHILLIPS

LINE NO. 101

	DESIGNATION	OLD MOP	OLD MAOP	OLD DP	65-76 HP	DATE	LOCATION	DIV	NEW MOP	NEW MAOP	NEW DP	NEW FDP	REMARKS
1	MILPITAS TERM. (MP0.00) TO RENGSTORFF STA. (MP9.80) 36"	400	400	400	—	T 12/65	—	SAN JOSE	400	400	400	400	TESTED IN DEC. 1965 SAN JOSE DIV FEB, 74 LTR
2	RENGSTORFF AVE STA VIA BAYSHORE TO S.F. BORDER MTR. STA (MP33.68) 20"	250	250	400	180	8/5/69	RENGSPRD	SAN JOSE	180	180	275	400	1974 LTR FROM D. WHALEN TO R.L. SISLER: PENN. REG @ SF Border Mtr. Sta., operating 1-20-76 SO 180# MOP IS valid. LCM 1-23-76
3	S.F. BORDER MTR STA VIA BAYSHORE TO POTRERO GAS PLANT (MP49.56) 20"	150	150	275	150	12/8/69	SFBMS	SAN FRAN	109	150 110?	275	275	109# MOP BECAUSE OF PENN MAIN: S.F. DIV FEB 71 LTR

X

62-6218 (REV 9-70)

PG and E

FOR INTRA—COMPANY USES

DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS
FILE NO 463
RE LETTER OF
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.

E. F. SIBLEY

JRGrinstead:sm

Attachment

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
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 PAGE NO. 1 EFFECTIVE 6/1/73

SUBJECT:

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

PURPOSE AND POLICY

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

RECISIONS

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

RESPONSIBILITY

3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.

4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

REFERENCES

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

DEFINITIONS

*6. 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.

*. Paragraph Revised
** Paragraph Added

(SEE OVER)

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 463-8

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 2 EFFECTIVE 5/1/75

ISSUING DEPARTMENT GAS SYSTEM DESIGN

REPLACING PAGE NO. 2 EFFECTIVE 6/1/73

SUBJECT:

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

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.

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

Specified Minimum Yield Strength (SMYS) is the minimum yield strength in psi prescribed by the specification under which pipe is purchased from the manufacturer or as specified in Section 192.107 of the current edition of G.O. 112.

APPLICATION

*7. Procedural details and supplemental data appear in addenda to this Standard Practice.

Supplement - Procedural Details
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

RECORD

8. Pressure Recording Charts and Operating Sheets (record of hourly data) which document the MAOP and/or MOP (PG&E) of pipelines and mains operating at or above 20% of SMYS shall be kept current by the Division and/or Pipe Line Operations Department assigned with the responsibility of maintenance and operation of facility.

SUPPLEMENT

9. The Supplement establishes the procedure for designating the MOP (PG&E), MAOP and DP for each facility.

APPROVED BY: E. F. Sibley
Vice President - Gas Operations

DISTRIBUTION:
Division Managers
Division Gas Superintendents
District Gas Superintendents
District Managers
Division Admin. Analyst or Equal
Director, Procedures Analysis
Pipe Line Operations

Additional copies of this Standard Practice may be obtained from Gas Operations, 77 Beale Street, San Francisco (PG&E Ext. 9-1604).

* Paragraph Revised

(SEE OVER)

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"

* Paragraph Revised
** Paragraph Added

LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Futur Desig Press
21	Crockett Station (MP 0.00) to MP 0.54	24" & 26"	400	405	650	675
21	MP 0.54 to Herrmann Station (MP 1.52)	24"	400	675	675	675
21	Herrmann Station to Reis Avenue (MP 2.71)	16"	250	258	575**	575*
21	Reis Avenue to Napa "Y" (MP 12.05)	12"	250	375	585	585
21	Napa "Y" to MP 35.05	12" & 26"	450	450	675	675
21	MP 35.05 to MP 51.41	12"	450	500	720	675
21	MP 51.41 to Santa Rosa Compressor Station (MP 53.12)	12"	450	500	720	675
21	MP 53.12 to MP 110.4	12"	600	890	890	890
21	MP 110.4 to MP 111.2	12"	600	720	890	890
21	MP 111.2 to MP 111.9	12"	600	890	890	890
21	MP 111.9 to MP 112.1	12"	600	720	890	890
21	MP 112.1 to MP 113.9	12"	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 Station (MP 21.62)	8"	250	250	720**	720**
*50	Biggs Regulator Station to Richvale "Y" (MP 26.94)	6" & 8"	250	250	720**	720**
*50	Richvale "Y" to Stirling Junction (MP 44.87)	6" & 8"	400	400	720**	720**
50	MP 0.00 to Paradise (MP 7.81)	8"	400	720	720	720
56	Pleasant Creek Field Storage System	4"	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8"	1300	1440	1440	1440

**See Paragraph 6

(See Over)

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

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
57	McDonald Island Field Storage System	4" - 12"	2160	2160	2160	2160
57	McDonald Island Compressor Station (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)	18"	867	867	867	867
57B	Brentwood Terminal to McDonald Island	22"	2160	2160	2160	2160
100	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 Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via 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)	12"	350	350	670**	500
103	California Street Regulator Station to Harkins Road Meter and Mixer Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*105	San Lorenzo Regulator Station to San Pablo Station (MP 52.01)	20"	150	198	275	275
*105	Oakland Holder Station (MP 0.00) to 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 Pablo Station (MP 11.85)	24"	400	400	400	400
105S	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"	500	500	500	720

**See Paragraph 6

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"	477	480	500	720
107S	Irvington Station to Milpitas 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	720	890
108	Vernalis Field Mixing Station to McMullin Ranch Mixer Station (MP 8.79)	16"	408	408	720**	720**
108	McMullin Ranch Mixer Station to MP 16.7	16"	408	408	720**	720**
108	MP 16.7 to Las Vinas Station (MP 43.5)	16"	412	412***	720**	720**
108	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant (MP 75.10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton Gas Plant (MP 1.71)	12"	185	185	275	275
109	Milpitas Terminal (MP 0.00) to 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 Junction (MP 21.65)	12"	650	650	800	720
111	Fresno Junction to Division Gas 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	800
114	West Rio Vista Field (MP 0.00) to Antioch Terminal (MP 9.01)	12" & 16"	510	510	800	800
114	Antioch Terminal to Brentwood Terminal (MP 16.59)	22"	595	595	595	720
114	Brentwood Terminal to Dalton Avenue PLS (MP 28.97)	22"	595	595	595	720
114	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)	8"	500	500	500	800
*116	Swingle Junction to Sacramento Gas Plant (MP 12.89)	8"	500	500	500	720

**See Paragraph 6

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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*118	Division Gas Load Center (MP 0.00) to Fresno Junction (MP 6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP 0.00) to Fresno HPU Station (MP 0.66)	12"	690	690	720	720
*118	Fresno Junction to MP 12.57	12"	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8"	400	400	720	720
118	Herndon (MP 0.00) to Athlone (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)	6"	400	400	400	400
118	Bradbury Road Regulator Station to 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 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	500	600
119	Sonoma Avenue Regulator and Del Paso Boulevard (MP 0.00) to Roseville Regulator Station (MP 5.25)	6"	180	500	500	500
120	Sutter Creek Field Collection System	4" & 6"	492	492	720	720
120	Sutter Buttes Field Collection System	4" & 6"	485	485	720	720
121	Marysville Buttes Meter Station (MP 0.00) to Yuba City HPU (MP 11.54)	6"	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 & 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

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 13.31) to MP 3.76	6"	400	400	720	600
125	Thompkins Hill Field Collection System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.89)	6"	350	442	720	720
126	Elk River Road Regulator (MP 0.00) to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10"	167	167	720	720
126	Union Street Regulator to Line 137 (MP 12.61)	6"	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 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 (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 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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
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 (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 38.59)	16"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry & Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator Station (MP 50.02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (T 46.64)	10"	650	720	720	720
141E	Thornton Meter Station to E. Thornton Field Collection System	4" & 6"	538	538	800	800
141W	Thornton Meter Station to W. Thornton Field Collection System	3" - 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
142S	Gosford Road Meter Station (MP 0.00) to Brundage Lane Regulator (MP 9.00)	6" & 10"	600	600	720	720
*142	MP 9.00 to Bakersfield Meter Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4"	796	800	800	800

**See Paragraph 6

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	800	800
146	Maine Prairie Meter Station (MP 0.00) to Maine Prairie Field (MP 6.00)	8"	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"	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	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"	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator Station (MP 3.91)	4"	975	975	1000	975
159	Pleasant Creek Regulator Station to Winters Meter Station (MP 6.08)	4"	750	750	800	800
159	Winters Field Collection System	4"	750	750	800	800

**See Paragraph 6

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*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
167	E. Beehive Bend Odorizer Station (MP 0.00) to Yuba City HPU. (MP 34.50)	12" & 16"	800	800	800	800
167	Wild Goose Field Meter (MP 0.00) to Wild Goose Mixer & Odorizer Station (Parallel)	10"	800	800	800	800
167	Wild Goose Mixer to Gridley Junction (MP 6.54)	8"	800	800	800	800
167	Wild Goose Collection System	3" & 4"	800	800	800	800
167	Princeton Field Collection System (MP 4.12 to MP 7.60)	3"	800	800	800	800
167	Compton Landing Field Collection System	4" & 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	800	800
168	River Island Field Collection System LP	3" - 8"	698	698	800	800
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 (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) & Line 167 (MP 0.60)	10"	800	800	800	800
172	Crosstie Between Line 172 (MP 75.45) & Line 119 (MP 9.68)	12"	500	520	720	720
*173	Line 123 (MP 0.00) (V 6.51) to Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720
*174	Arbuckle Field Collection System	2" - 10"	800	800	800	800
176	Roberts Island Field Collection System	2" - 8"	555	555	800	800
176	Roberts Island Field (MP 0.00) to Tracy Station (MP 18.85)	6" & 8"	555	555	800	800
177	Sacramento Avenue Junction (MP 0.00) to Grapeway Regulator Station (MP 0.87)	10"	819	819	960	960

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 Corning N. Dome	6" & 8"	819	819	960	960
177	Corning N. Dome Station to Gerber Compressor Station (MP 37.84)	12"	819	819	960	960
177	Gerber Compressor Station to Cummings Creek PLS (MP 163.04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill Meter & Regulator Sta (MP 178.18)	12"	430	430	720	720
177	Thompkins Hill Meter & Regulator Station to Ryan Slough Regulator 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
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 Station (MP 11.19)	10" 16" 12"	300	303	400	400
*182	Serpa "Y" (MP 0.00) to Shell Chemical Meter Station (MP 18.23)	4" - 12"	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun Junction Meter Station (MP 18.87)	12"	435	435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	Firebaugh Regulator Sta. (MP 0.00) to Moffat Field Meter Sta. (MP 6.35)	3"	320	320	800	800
185	Hollister Field Collection System	4"	396	396	600	500
186	Dos Palos Meter Station (MP 0.00) to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

(See Over)

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

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 (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	2160	2160	2160
190	Coalinga Nose Storage Field to Union Oil Company (MP 16.22)	16"	2160	2160	2160	2160
191	Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)	30" & 34"	315	600	600	600
191	MP 3.87 to MP 9.93 Via Pittsburg Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road Regulator Station	16" 20" 24"	315	338	600	600
*191	Reliez Station Road Regulator Station to MP 29.36	8" 10" 12"	268	283	400	400
*191	Junction Line 191 (MP 29.36) to MP 32.76	10"	268	270	400	400
*191	MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)	10"	268	268	400	400
*191A	Junction Line 191 to Ardilla and Camino Pablo & Orinda Regulator Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193	Malton Field Collection System	4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North Collection System	6"	819	819	960	960
194	McMullin Ranch Mixer (MP 0.00) to MP 2.83	8" & 10"	437	437	800	800
194	McMullin Field Dehydrator Station (MP 0.00) to California Ammonia Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*195	Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21.41 to MP 31.23	10" & 12"	320	500	720	720
197A	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8"	320	320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	V 19.57 to V 31.24	8"	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
200	Liberty Islands Field Collection System	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	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil Meter Station	18"	650	720	720	675

(See Over)

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 Meter & Regulator Station (MP 22.01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan Meter & Regulator Station (MP 34.11)	6" & 8"	500	500	500	800
300A	Colorado River (MP 0.00) to Topock Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A (MP 40.87)	34"	867	867	890	890
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	815	815
300A	PLS 2A to PLS 2AX (MP 130.37)	34"	688	688	688	688
300A	PLS 2AX to Hinkley Compressor Station (MP 159.33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS 3A (MP 203.02)	34"	861	861	890	890
300A	PLS 3A to PLS 4A (MP 256.21)	34"	803	817	817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor 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

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)	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) to Moss Landing Power Plant (MP 24.84)	20"	396	396	500	500
301B	Dolan Road Meter Station (MP 0.00) to Hilltown Regulator Station (MP 14.02)	12"	408	408	600	500
*301C	Hilltown Regulator Station to Harkins Road Meter and Mixer Station (MP 17.20)	8" & 12"	313	313	500	500
*301F	Espinosa Road (MP 0.00) to Marina 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 Meter & Regulator Station (MP 1.72)	10"	500	500	500	500
301H	Anzar Tap Station to Anzar Road Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk & Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	Buckeye Creek PLS (MP 0.00) to Hershey Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood Terminal (MP 7.86)	36"	720	720	720	720
303	Brentwood Terminal to Irvington Station (MP 42.83)	36"	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop Dehydrator & Odorizer Station (MP 11.29)	12"	825	825	825	825
304	Lathrop Field Collection System	3" - 12"	825	825	825	825
306	Kettleman Compressor Station (MP 0.00) to Dry Creek PLS (MP 43.3)	20"	840	840	840	840

(See Over)

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 Regulator (MP 16.36)	8"	500	500	915	890
307	Derrick Road Tap (MP 0.00) to Arbios Regulator Station (MP 4.95)	8"	500	890	915	890
311	Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station (MP 54.44)	10" & 12"	700	700	960	890
311	Parallel Section (MP 31.97) to MP 38.49	12"	700	810	960	890
312	Line 300A (MP 0.00) (T 273.27) to Paloma Field Meter Station (MP 8.00)	8"	736	740	820	820
313	Lucerne Valley Tap Meter Station to Permanente Company Meter (MP 34.4)	8" & 10"	573	573	720	720
314	Hinkley Compressor Station (MP 0.00) to MP 24.19	12"	861	861	890	890
314	MP 24.19 to MP 29.00	10"	260	260	720	720
314	MP 29.00 to Black Mountain Meter & Regulator Station (MP 43.18)	8" & 10"	260	260	720	720
314	Tap to Riverside Cement	8"	260	260	720	720
314	Tap to Airbase Road Meter Station	8"	260	260	720	720
*316	Dutch Slough & River Break Field Collection System	2" - 12"	800	800	800	800
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 (MP 24.60)	36"	911	911	911	911
400	Tionesta Compressor Station to Indian Springs PLS (MP 48.64)	36"	911	911	911	911
400	Indian Springs PLS to Burney Compressor Station (MP 82.33)	36"	911	911	911	911
400	Burney Compressor Station to MP 104.20	36"	911	911	911	911
400	MP 104.20 to Shingletown PLS (MP 115.26)	36"	911	915	942	942
400	Shingletown PLS to Gerber Compressor Station (MP 149.18)	36"	911	911	911	911

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	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 PLS (MP 9.96)	12"	300	300	865	865
402	MP 9.96 to Calaveras Cement Tap (MP 38.10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed Station (MP 1.38)	16"	650	650	855	800

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

DISTRIBUTION MAINS
OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
COLGATE DIVISION					
Yuba City HPU Holder to Market Street Regulator Pit	6" & 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	315	338	600	600
General Chemical Tap	4"	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

(See Over)

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter Station	8"	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator 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
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"	400	720	720	720
Cressey Way Feeder	4" & 6"	400	400	720	720
Valley Nitrogen Feeder	6"	650	650	800	720
SAN JOSE DIVISION					
Half Moon Bay Feeder Line	8" 10" 12"	400	577	577**	577**
Santa Cruz to Davenport	10" & 12"	300	303	557**	400
Milpitas Terminal to PLS #7, Kings Road, 20" Feeder	16" 20" 30"	200	200	275	526
Watsonville to River Street Regulator Station	8" & 10"	300	303	577**	400
Watsonville to Rob Roy Junction	10"	300	303	557**	400

**See Paragraph 6

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	2"	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	400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

(See Over)

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

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:

1. I am a California Registered Mechanical Engineer and a California Registered Control System Engineer. My registration numbers are M-14394 and CS-2670, respectively. I am a member of the American Society of Mechanical Engineers (ASME) Gas Pipeline Safety Research Committee, a member of the American Gas Association (AGA) Gas Piping Technology Committee, and a member of the ASME B31.8 Gas Transmission and Distribution Piping Systems Committee. I am currently Vice-President of Gas Engineering for Energy Experts International, based in Redwood City, California. PG&E has retained my services to work on various projects, including matters related to the September 2010 San Bruno incident. I have personal knowledge of the following facts and, if called as a witness, would testify thereto.

2. From March 28, 1966 to May 1, 2005, I was an employee of Pacific Gas and Electric Company ("PG&E"). From December 1, 1966 to 1990, I was chronologically a Gas Engineer, Senior Gas Engineer, and Supervising Gas Engineer in the Gas System Design Department. The Gas System Design Department was responsible for determining the Maximum Allowable Operating Pressure ("MAOP") of PG&E's gas

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

3. In 1968-1969, in preparation for implementation of the Natural Gas Pipeline Safety Act of 1968, PG&E's Gas System Design Department commenced an effort to consolidate transmission pipeline system documentation and information. Part of this effort consisted of determining the MAOP of PG&E's transmission pipelines in accordance with applicable law. PG&E created "Pipeline Survey" sheets for each of its transmission pipelines during this time period and transferred detailed information on these sheets from existing records and other sources, including information on pipe specifications, test information, MAOP, geographic features and location class information. Previously this pipeline information had not been consolidated in this manner.

4. During that time period, PG&E's gas system was centrally operated by Gas Control in San Francisco, and locally operated by four Terminals (Antioch, Brentwood, Milpitas and Kettleman) and nine Division Gas Load Centers (Marysville, Eureka, Sacramento, Stockton, Fresno, San Rafael, San Francisco, Oakland and San Jose). For Lines 300A and 300B, full-time operators were on duty at the Topock Compressor Station, Hinkley Compressor Station and Kettleman Compressor Station. PG&E continuously monitored and recorded pressures in the gas system at these locations and logged the recorded pressures on at least an hourly basis. PG&E's policy at that time was to keep the pressure recordings and log sheets for at least five years.

5. In 1969-1970, I was involved in reviewing many of the above-referenced pressure recordings and log sheets to determine the highest operating pressure of each transmission line segment from July 1, 1965 through July 1, 1970 ("Five-Year Period"). At that time, the MAOPs of a majority of transmission pipelines evaluated were established by the highest operating pressure experienced within the Five-Year Period. For those pipelines constructed during the Five-Year Period, PG&E established the MAOP based on information from its pressure tests. PG&E's divisions retained this MAOP information for the pipelines in their areas.

6. On June 1, 1973, PG&E's Gas System Design Department issued Standard Practice 463-8, "Maximum Operating Pressures of Pipelines and Mains Operating at or Above 20% of S.M.Y.S." Part of the purpose of Standard Practice was to establish a uniform company procedure for identifying, reviewing and revising MAOPs of transmission pipelines. A true and correct copy of Standard Practice 463-8, effective May 1, 1975 and replacing the version of Standard Practice 463-8 issued on June 1, 1973, is attached hereto as Exhibit A.

7. In 1974, I was involved in reviewing the transmission pressure information again as part of an effort by PG&E to compile and centralize information on the basis of the MAOP established for each of its transmission pipelines operating at or above 20% specified minimum yield strength ("SMYS"). PG&E created a series of charts to record a summary of this MAOP information and saved the supporting documentation in binders for each of the thirteen divisions in existence at that time. A true and correct copy of a sample page from the MAOP charts that PG&E created in the 1974 time period is attached hereto as Exhibit B.

8. Based upon the MAOP information compiled in the effort described in paragraph 7 above, PG&E created appendices to Standard Practice 463-8 listing the MAOPs of all numbered transmission pipelines and DFMs operating at or above 20% of SMYS. See Appendices A and B to Standard Practice 463-8, effective May 1, 1975, attached hereto as Exhibit A. PG&E updated these MAOP appendices regularly.

9. 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 14h day of March 2011, at Walnut Creek, California.

/s/
ROBERT C. BECKEN

62-6218 (REV 9-70)

PG and E

FOR INTRA—COMPANY USES

DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS
FILE NO 463
RE LETTER OF
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.

E. F. SIBLEY

JRGrinstead:sm

Attachment

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
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 PAGE NO. 1 EFFECTIVE 6/1/73

SUBJECT:

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

PURPOSE AND POLICY

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

RECISIONS

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

RESPONSIBILITY

3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.

4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

REFERENCES

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

DEFINITIONS

*6. 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.

*. Paragraph Revised
** Paragraph Added

(SEE OVER)

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 463-8

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 2 EFFECTIVE 5/1/75

ISSUING DEPARTMENT GAS SYSTEM DESIGN

REPLACING PAGE NO. 2 EFFECTIVE 6/1/73

SUBJECT:

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

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.

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

Specified Minimum Yield Strength (SMYS) is the minimum yield strength in psi prescribed by the specification under which pipe is purchased from the manufacturer or as specified in Section 192.107 of the current edition of G.O. 112.

APPLICATION

*7. Procedural details and supplemental data appear in addenda to this Standard Practice.

Supplement - Procedural Details
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

RECORD

8. Pressure Recording Charts and Operating Sheets (record of hourly data) which document the MAOP and/or MOP (PG&E) of pipelines and mains operating at or above 20% of SMYS shall be kept current by the Division and/or Pipe Line Operations Department assigned with the responsibility of maintenance and operation of facility.

SUPPLEMENT

9. The Supplement establishes the procedure for designating the MOP (PG&E), MAOP and DP for each facility.

APPROVED BY: E. F. Sibley
Vice President - Gas Operations

DISTRIBUTION:
Division Managers
Division Gas Superintendents
District Gas Superintendents
District Managers
Division Admin. Analyst or Equal
Director, Procedures Analysis
Pipe Line Operations

Additional copies of this Standard Practice may be obtained from Gas Operations, 77 Beale Street, San Francisco (PG&E Ext. 9-1604).

* Paragraph Revised

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"

* Paragraph Revised
** Paragraph Added

LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Futur Desig Press
21	Crockett Station (MP 0.00) to MP 0.54	24" & 26"	400	405	650	675
21	MP 0.54 to Herrmann Station (MP 1.52)	24"	400	675	675	675
21	Herrmann Station to Reis Avenue (MP 2.71)	16"	250	258	575**	575**
21	Reis Avenue to Napa "Y" (MP 12.05)	12"	250	375	585	585
21	Napa "Y" to MP 35.05	12" & 26"	450	450	675	675
21	MP 35.05 to MP 51.41	12"	450	500	720	675
21	MP 51.41 to Santa Rosa Compressor Station (MP 53.12)	12"	450	500	720	675
21	MP 53.12 to MP 110.4	12"	600	890	890	890
21	MP 110.4 to MP 111.2	12"	600	720	890	890
21	MP 111.2 to MP 111.9	12"	600	890	890	890
21	MP 111.9 to MP 112.1	12"	600	720	890	890
21	MP 112.1 to MP 113.9	12"	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 Station (MP 21.62)	8"	250	250	720**	720**
*50	Biggs Regulator Station to Richvale "Y" (MP 26.94)	6" & 8"	250	250	720**	720**
*50	Richvale "Y" to Stirling Junction (MP 44.87)	6" & 8"	400	400	720**	720**
50	MP 0.00 to Paradise (MP 7.81)	8"	400	720	720	720
56	Pleasant Creek Field Storage System	4"	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8"	1300	1440	1440	1440

**See Paragraph 6

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
57	McDonald Island Field Storage System	4" - 12"	2160	2160	2160	2160
57	McDonald Island Compressor Station (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)	18"	867	867	867	867
57B	Brentwood Terminal to McDonald Island	22"	2160	2160	2160	2160
100	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 Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via 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)	12"	350	350	670**	500
103	California Street Regulator Station to Harkins Road Meter and Mixer Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*105	San Lorenzo Regulator Station to San Pablo Station (MP 52.01)	20"	150	198	275	275
*105	Oakland Holder Station (MP 0.00) to 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 Pablo Station (MP 11.85)	24"	400	400	400	400
105S	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"	500	500	500	720

**See Paragraph 6

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"	477	480	500	720
107S	Irvington Station to Milpitas 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	720	890
108	Vernalis Field Mixing Station to McMullin Ranch Mixer Station (MP 8.79)	16"	408	408	720**	720**
108	McMullin Ranch Mixer Station to MP 16.7	16"	408	408	720**	720**
108	MP 16.7 to Las Vinas Station (MP 43.5)	16"	412	412***	720**	720**
108	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant (MP 75.10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton Gas Plant (MP 1.71)	12"	185	185	275	275
109	Milpitas Terminal (MP 0.00) to 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 Junction (MP 21.65)	12"	650	650	800	720
111	Fresno Junction to Division Gas 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	800
114	West Rio Vista Field (MP 0.00) to Antioch Terminal (MP 9.01)	12" & 16"	510	510	800	800
114	Antioch Terminal to Brentwood Terminal (MP 16.59)	22"	595	595	595	720
114	Brentwood Terminal to Dalton Avenue PLS (MP 28.97)	22"	595	595	595	720
114	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)	8"	500	500	500	800
*116	Swingle Junction to Sacramento Gas Plant (MP 12.89)	8"	500	500	500	720

**See Paragraph 6

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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*118	Division Gas Load Center (MP 0.00) to Fresno Junction (MP 6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP 0.00) to Fresno HPU Station (MP 0.66)	12"	690	690	720	720
*118	Fresno Junction to MP 12.57	12"	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8"	400	400	720	720
118	Herndon (MP 0.00) to Athlone (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)	6"	400	400	400	400
118	Bradbury Road Regulator Station to 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 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	500	600
119	Sonoma Avenue Regulator and Del Paso Boulevard (MP 0.00) to Roseville Regulator Station (MP 5.25)	6"	180	500	500	500
120	Sutter Creek Field Collection System	4" & 6"	492	492	720	720
120	Sutter Buttes Field Collection System	4" & 6"	485	485	720	720
121	Marysville Buttes Meter Station (MP 0.00) to Yuba City HPU (MP 11.54)	6"	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 & 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

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 13.31) to MP 3.76	6"	400	400	720	600
125	Thompkins Hill Field Collection System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.89)	6"	350	442	720	720
126	Elk River Road Regulator (MP 0.00) to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10"	167	167	720	720
126	Union Street Regulator to Line 137 (MP 12.61)	6"	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 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 (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 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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
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 (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 38.59)	16"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry & Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator Station (MP 50.02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (T 46.64)	10"	650	720	720	720
141E	Thornton Meter Station to E. Thornton Field Collection System	4" & 6"	538	538	800	800
141W	Thornton Meter Station to W. Thornton Field Collection System	3" - 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
142S	Gosford Road Meter Station (MP 0.00) to Brundage Lane Regulator (MP 9.00)	6" & 10"	600	600	720	720
*142	MP 9.00 to Bakersfield Meter Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4"	796	800	800	800

**See Paragraph 6

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	800	800
146	Maine Prairie Meter Station (MP 0.00) to Maine Prairie Field (MP 6.00)	8"	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"	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	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"	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator Station (MP 3.91)	4"	975	975	1000	975
159	Pleasant Creek Regulator Station to Winters Meter Station (MP 6.08)	4"	750	750	800	800
159	Winters Field Collection System	4"	750	750	800	800

**See Paragraph 6

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*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
167	E. Beehive Bend Odorizer Station (MP 0.00) to Yuba City HPU. (MP 34.50)	12" & 16"	800	800	800	800
167	Wild Goose Field Meter (MP 0.00) to Wild Goose Mixer & Odorizer Station (Parallel)	10"	800	800	800	800
167	Wild Goose Mixer to Gridley Junction (MP 6.54)	8"	800	800	800	800
167	Wild Goose Collection System	3" & 4"	800	800	800	800
167	Princeton Field Collection System (MP 4.12 to MP 7.60)	3"	800	800	800	800
167	Compton Landing Field Collection System	4" & 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	800	800
168	River Island Field Collection System LP	3" - 8"	698	698	800	800
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 (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) & Line 167 (MP 0.60)	10"	800	800	800	800
172	Crosstie Between Line 172 (MP 75.45) & Line 119 (MP 9.68)	12"	500	520	720	720
*173	Line 123 (MP 0.00) (V 6.51) to Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720
*174	Arbuckle Field Collection System	2" - 10"	800	800	800	800
176	Roberts Island Field Collection System	2" - 8"	555	555	800	800
176	Roberts Island Field (MP 0.00) to Tracy Station (MP 18.85)	6" & 8"	555	555	800	800
177	Sacramento Avenue Junction (MP 0.00) to Grapeway Regulator Station (MP 0.87)	10"	819	819	960	960

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 Corning N. Dome	6" & 8"	819	819	960	960
177	Corning N. Dome Station to Gerber Compressor Station (MP 37.84)	12"	819	819	960	960
177	Gerber Compressor Station to Cummings Creek PLS (MP 163.04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill Meter & Regulator Sta (MP 178.18)	12"	430	430	720	720
177	Thompkins Hill Meter & Regulator Station to Ryan Slough Regulator 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
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 Station (MP 11.19)	10" 16" 12"	300	303	400	400
*182	Serpa "Y" (MP 0.00) to Shell Chemical Meter Station (MP 18.23)	4" - 12"	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun Junction Meter Station (MP 18.87)	12"	435	435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	Firebaugh Regulator Sta. (MP 0.00) to Moffat Field Meter Sta. (MP 6.35)	3"	320	320	800	800
185	Hollister Field Collection System	4"	396	396	600	500
186	Dos Palos Meter Station (MP 0.00) to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

(See Over)

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 (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	2160	2160	2160
190	Coalinga Nose Storage Field to Union Oil Company (MP 16.22)	16"	2160	2160	2160	2160
191	Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)	30" & 34"	315	600	600	600
191	MP 3.87 to MP 9.93 Via Pittsburg Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road Regulator Station	16" 20" 24"	315	338	600	600
*191	Reliez Station Road Regulator Station to MP 29.36	8" 10" 12"	268	283	400	400
*191	Junction Line 191 (MP 29.36) to MP 32.76	10"	268	270	400	400
*191	MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)	10"	268	268	400	400
*191A	Junction Line 191 to Ardilla and Camino Pablo & Orinda Regulator Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193	Malton Field Collection System	4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North Collection System	6"	819	819	960	960
194	McMullin Ranch Mixer (MP 0.00) to MP 2.83	8" & 10"	437	437	800	800
194	McMullin Field Dehydrator Station (MP 0.00) to California Ammonia Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*195	Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21.41 to MP 31.23	10" & 12"	320	500	720	720
197A	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8"	320	320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	V 19.57 to V 31.24	8"	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
200	Liberty Islands Field Collection System	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	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil Meter Station	18"	650	720	720	675

(See Over)

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 Meter & Regulator Station (MP 22.01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan Meter & Regulator Station (MP 34.11)	6" & 8"	500	500	500	800
300A	Colorado River (MP 0.00) to Topock Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A (MP 40.87)	34"	867	867	890	890
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	815	815
300A	PLS 2A to PLS 2AX (MP 130.37)	34"	688	688	688	688
300A	PLS 2AX to Hinkley Compressor Station (MP 159.33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS 3A (MP 203.02)	34"	861	861	890	890
300A	PLS 3A to PLS 4A (MP 256.21)	34"	803	817	817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor 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

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)	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) to Moss Landing Power Plant (MP 24.84)	20"	396	396	500	500
301B	Dolan Road Meter Station (MP 0.00) to Hilltown Regulator Station (MP 14.02)	12"	408	408	600	500
*301C	Hilltown Regulator Station to Harkins Road Meter and Mixer Station (MP 17.20)	8" & 12"	313	313	500	500
*301F	Espinosa Road (MP 0.00) to Marina 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 Meter & Regulator Station (MP 1.72)	10"	500	500	500	500
301H	Anzar Tap Station to Anzar Road Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk & Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	Buckeye Creek PLS (MP 0.00) to Hershey Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood Terminal (MP 7.86)	36"	720	720	720	720
303	Brentwood Terminal to Irvington Station (MP 42.83)	36"	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop Dehydrator & Odorizer Station (MP 11.29)	12"	825	825	825	825
304	Lathrop Field Collection System	3" - 12"	825	825	825	825
306	Kettleman Compressor Station (MP 0.00) to Dry Creek PLS (MP 43.3)	20"	840	840	840	840

(See Over)

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 Regulator (MP 16.36)	8"	500	500	915	890
307	Derrick Road Tap (MP 0.00) to Arbios Regulator Station (MP 4.95)	8"	500	890	915	890
311	Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station (MP 54.44)	10" & 12"	700	700	960	890
311	Parallel Section (MP 31.97) to MP 38.49	12"	700	810	960	890
312	Line 300A (MP 0.00) (T 273.27) to Paloma Field Meter Station (MP 8.00)	8"	736	740	820	820
313	Lucerne Valley Tap Meter Station to Permanente Company Meter (MP 34.4)	8" & 10"	573	573	720	720
314	Hinkley Compressor Station (MP 0.00) to MP 24.19	12"	861	861	890	890
314	MP 24.19 to MP 29.00	10"	260	260	720	720
314	MP 29.00 to Black Mountain Meter & Regulator Station (MP 43.18)	8" & 10"	260	260	720	720
314	Tap to Riverside Cement	8"	260	260	720	720
314	Tap to Airbase Road Meter Station	8"	260	260	720	720
*316	Dutch Slough & River Break Field Collection System	2" - 12"	800	800	800	800
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 (MP 24.60)	36"	911	911	911	911
400	Tionesta Compressor Station to Indian Springs PLS (MP 48.64)	36"	911	911	911	911
400	Indian Springs PLS to Burney Compressor Station (MP 82.33)	36"	911	911	911	911
400	Burney Compressor Station to MP 104.20	36"	911	911	911	911
400	MP 104.20 to Shingletown PLS (MP 115.26)	36"	911	915	942	942
400	Shingletown PLS to Gerber Compressor Station (MP 149.18)	36"	911	911	911	911

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	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 PLS (MP 9.96)	12"	300	300	865	865
402	MP 9.96 to Calaveras Cement Tap (MP 38.10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed Station (MP 1.38)	16"	650	650	855	800

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

DISTRIBUTION MAINS
OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
COLGATE DIVISION					
Yuba City HPU Holder to Market Street Regulator Pit	6" & 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	315	338	600	600
General Chemical Tap	4"	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

(See Over)

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter Station	8"	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator 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
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"	400	720	720	720
Cressey Way Feeder	4" & 6"	400	400	720	720
Valley Nitrogen Feeder	6"	650	650	800	720
SAN JOSE DIVISION					
Half Moon Bay Feeder Line	8" 10" 12"	400	577	577**	577**
Santa Cruz to Davenport	10" & 12"	300	303	557**	400
Milpitas Terminal to PLS #7, Kings Road, 20" Feeder	16" 20" 30"	200	200	275	526
Watsonville to River Street Regulator Station	8" & 10"	300	303	577**	400
Watsonville to Rob Roy Junction	10"	300	303	557**	400

**See Paragraph 6

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	2"	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	400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

(See Over)

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

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

	DESIGNATION	OLD MOP	OLD MAOP	OLD DP	65-76 HP	DATE	LOCATION	DIV	NEW MOP	NEW MAOP	NEW DP	NEW FDP	REMARKS
1	MILPITAS TERM. (MP0.00) TO RENGSTORFF STA. (MP9.80) 36"	400	400	400	—	T 12/65	—	SAN JOSE	400	400	400	400	TESTED IN DEC. 1965 SAN JOSE DIV FEB, 74 LTR
2	RENGSTORFF AVE STA VIA BAYSHORE TO S.F. BORDER MTR. STA (MP33.68) 20"	250	250	400	180	8/5/69	RENGSTORFF	SAN JOSE	180	180	275	400	1974 LTR FROM D. WHALEN TO R.L. SISLER: PENN. REG @ SF Border Mtr. Sta., operating 1-20-76 SO 180# MOP IS valid. LCM 1-23-76
3	S.F. BORDER MTR STA VIA BAYSHORE TO POTRERO GAS PLANT (MP49.56) 20"	150	150	275	150	12/8/69	SFBMS	SAN FRAN	109	150 110?	275	275	109# MOP BECAUSE OF PENN MAIN: S.F. DIV FEB 71 LTR

X

Exh. C (Becken) RCB

62-6218 (REV. 9-70)

PG and E

FOR INTRA—COMPANY USES

DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS

FILE NO. 463

RE LETTER OF SUBJECT Standard Practice 463-8
MAOP of Pipelines and Mains
Operating Over 20% of SMYS

April 9, 1979

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

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

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

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

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

Howard M. McKinley

HOWARD M. McKINLEY

JYura (2863):cm

cc: Gas Operations Managers

Attachments

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 086868. 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

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 463-8

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 1 EFFECTIVE 4/9/79

ISSUING DEPARTMENT GAS SYSTEM DESIGN

REPLACING PAGE NO. 1 EFFECTIVE 5/1/75

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

PURPOSE AND POLICY

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

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 Drawing 086868 "Maximum Operating Pressures of Pipelines and Mains Operating at or Above 20% of SMYS"
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 Drawing 086868).

* Paragraph Revised
** Paragraph Added

(SEE OVER)

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 463-8

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 2 EFFECTIVE 4/9/79

ISSUING DEPARTMENT GAS SYSTEM DESIGN

REPLACING PAGE NO. 2 EFFECTIVE 5/1/75

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

DEFINITIONS

Future Design Pressure is the Design Pressure (DP) to be used for future additions to existing facilities, as shown on the latest revision of Drawing 086868.

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.

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

Specified Minimum Yield Strength (SMYS) is the minimum yield strength in psi prescribed by the specification under which pipe is purchased from the manufacturer or as specified in Section 192.107 of the current edition of G.O. 112.

APPLICATION

*7. Procedural details appear in the addenda to this Standard Practice.

RECORD

8. Pressure Recording Charts and Operating Sheets (record of hourly data) which document the MAOP and/or MOP (PG&E) of pipelines and mains operating at or above 20% of SMYS shall be kept current by the Division and/or Pipe Line Operations Department assigned with the responsibility of maintenance and operation of facility.

SUPPLEMENT

9. The Supplement establishes the procedure for designating the MOP (PG&E), MAOP and DP for each facility.

APPROVED BY: Howard M. McKinley
Vice President - Gas Operations

DISTRIBUTION:
Division Managers
Division Gas Superintendents
District Gas Superintendents
District Managers
Division Admin. Analyst or Equal
Director, Procedures Analysis
Pipe Line Operations

Additional copies of this Standard Practice may be obtained from Gas Operations, 77 Beale Street, San Francisco, (PG&E Ext. 22-1604).

* Paragraph Revised
** Paragraph Added

(SEE OVER)

PURPOSE

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

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

DEFINITIONS

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

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

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

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

CHANGES IN THE MAOP REQUIRE CPUC NOTIFICATION

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

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

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

APPROVED BY	REV.	DATE	DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.

GM		PIPELINE - DATA SHEET MAOP OF LINES OPERATING AT OR OVER 20% SMYS TYPICAL	B/M
SUPV.			DWG. LIST
DSGN.			SUPSDS
DWN.			SUPSD BY
CHKD.			SHEET NO. 1 of 30 SHEETS
O.K.			REV.
DATE 4/9/79	SCALE	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	086868 O

62-1804 Rev 7-75

MICROFILM

MAOP INDEX

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
21	0.00	1.07	Crockett Station to MP 1.07	24" & 26"	400	405	650	675
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	890
21	0.00	18.64	Napa "Y" to MP 18.64	16"	450	500	720	675
21	18.64	25.84	MP 18.64 to Pepper Road	16"	450	500	720	675
21	34.84	35.86	McDowell Road Tap to Petaluma Meter Station	12"	450	500	593	675
21	0.00	21.11	Adobe to San Rafael HPU Holder Station	16" & 20"	450	500	500	500
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 System	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.

P G & E CO.

SHEET 3 OF 30 SHEETS

DRAWING NUMBER 086868

REV. O

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
56			Pleasant Creek Field Storage System	4" & 8"	1300	1440	1440	1440
57			McDonald Island Field Storage System	4" - 12"	2160	2160	2160	2160
57	0.00	7.47	McDonald Island Compressor Station to PLS	14",16",18"	1025	1025	1025	1025
57	7.47	16.64	PLS to Brentwood Terminal	18"	867	867	867	867
57B	0.00	16.46	Brentwood Terminal to McDonald Island	22"	2160	2160	2160	2160
65			SP 3 (T176.7) to Los Medanos Compressor Station	4",6",10"	315	600	600	600
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 Bayshore to San Francisco Border Meter Station	20"	180	180	275	400
*101	33.68	44.56	San Francisco Meter Station Via Bayshore Boulevard to Potrero 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 Station To Harkins Road Meter and Mixer Station	12"	313	313	670**	500
105	6.88	23.03	Irvington Station to San Lorenzo Regulator Station	20", 24" 26" & 34"	250	250	500	500

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*105	23.03		52.01	San Lorenzo Regulator Station to San Pablo Station	20", 22" 24" & 30"	150	198	275	275
*105	0.00		2.03	Oakland Holder Station to Berkeley City Limits (Parallel)	24"	150	198	275	275
105	0.00		0.18	Baine Avenue Crossover to Line 153	20"	250	250	590	500
*105	0.00		0.185	West Winton Avenue Crossover to Line 153	22" & 24"	250	250	500	500
105B	0.00		11.85	Crockett Station to San Pablo Station	24"	400	400	400	400
107	0.00		13.11	Tracy Station to Livermore Junction	22"	500	500	500	720
107	13.11		31.22	Livermore Junction to Irvington Station	22"	477	480	500	720
107S	31.22		38.12	Irvington Station to Milpitas Terminal	22",24" & 36"	477	477	500	720
108	0.00		4.59	Stanpac 2 to Vernalis Field Mixing Station	16"	500	500	720	890
108	4.59		8.79	Vernalis Field Mixing Station to McMullin Ranch Mixer Station	16"	408	408	720**	720**
108	8.79		16.7	McMullin Ranch Mixer Station to MP 16.7	16"	408	408	720**	720**
108	16.7		43.5	MP 16.7 to Las Vinas Station	16"	412	412	720**	720**
108	43.5		62.20	Las Vinas Station to MP 62.20	16"	490	490	500	720
108	62.20		75.10	MP 62.20 to Sacramento Division Gas Load Center	16" & 24"	412	412	500	656
*108	27.10		1.71	E. Hazleton & B Streets Regulator Station to Stockton Gas Plant	12"	175	185	275	275
109	0.00		43.47	Milpitas Terminal to Sullivan Avenue Regulator Station	22" & 30"	375	375	400	400

P G & E CO.

SHEET 5 OF 30 SHEETS

DRAWING NUMBER 086868

REV. ○

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*109	43.47	52.71	Sullivan Avenue Regulator to Potrero Gas Plant	26"	150	150	275	275
111	0.00	21.65	Helm Junction to Fresno Junction	12"	650	650	800	720
111	21.65	28.05	Fresno Junction to Division Gas Load Center	8"	400	400	720	720
111			Raisin City Field Collection System	4"	650	800	800	800
111			San Joaquin Field Collection System	3" & 4"	650	800	960	960
112			Vernalis Field Collection System	3" - 8"	594	594	800	800
114	0.00	9.01	West Rio Vista Field to Antioch Terminal	12" & 16"	510	510	800	800
114	9.01	16.59	Antioch Terminal to Brentwood Terminal	22"	595	595	595	720
114	16.59	28.97	Brentwood Terminal to Dalton Avenue	22"	595	595	595	720
114	28.97	33.85	Dalton Avenue to Livermore Junction	36"	595	595 (1)	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
*116	6.19	12.89	V-6.19 to Sacramento Gas Plant	8"	500	500	500	720
*118	0.00	6.09	Division Gas Load Center to Fresno Junction	8"	400	400	500	720
118	0.00	0.66	Division Gas Load Center to Fresno HPU Station	12"	690	690	720	720
*118	5.86	12.57	Fresno Junction to MP 12.57	12"	400	400	720	720
*118	12.57	73.26	MP 12.57 to Livingston	8"	400	400	500	720
118	0.00	38.39	Herndon to Athlone	12"	400	400	720	720

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

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

LINES OPERATING AT OR OVER 20% SMYS

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	720	720
118	74.89	83.74	Collier Road to Bradbury Road Regulator Station	6"	400	400	400	720
118	80.68	83.74	MP 80.68 to Bradbury Road Regulator Station	8"	400	720 (3)	720	720
118	83.74	84.69	Bradbury Road Regulator Station to MP 84.69 (L-215 Tap) Parallel	6" & 8"	500	890	890	890
119	0.00	3.85	Davis Meter Station to Swingle 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 Station	12"	500	500	500	600
119	0.00	8.41	N. Sacramento HPU to Antelope Meter Station	6" & 16"	500	500	500	600
119	0.00	2.80	N. Sacramento HPU to MP 2.80	24"	180	180	545	545
119	4.6	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.

P G & E CO.
SHEET 7 OF 30 SHEETS
DRAWING NUMBER 086868
REV. 0

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
123	0.00	13.57	Antelope Meter Station to Lincoln Junction	12"	500	500	670**	670**
124	0.00	23.46	Lincoln Junction to 5th & Walnut, 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) to MP 3.76	6"	400	400	720	600
125			Tompkins Hill Field Collection System	3",4",6"	448	448	720	720
126	0.00	10.57	Tompkins Hill Meter Station to Union Street Regulator	4"	350	425	720	720
126	0.00	10.89	Tompkins Hill Meter Station to Union Street Regulator	6"	350	425	720	720
126	0.00	3.62	Elk River Road Regulator to T 12.38, Line 126	10"	167	167	720	720
*126	0.00	0.36	MP 0.00 to Eureka Propane	10"	167	167	720	720
126	10.89	12.61	Union Street Regulator to Line 137	6"	167	167	720	720
130A	0.00	0.50	HP Rio Vista Sacramento River Crossing	10"	800	800	800	800
130B	0.00	0.50	LP Rio Vista Sacramento River Crossing	10"	510	510	800	720
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 Terminal	10" & 12"	720 (4) 510 (5)	720	720	720
131	9.19	10.47	Antioch Terminal to MP 10.47	24"	438	438	600	720
131	10.47	16.87	MP 10.47 to Brentwood Terminal	24"	438	495	600	720
131	16.87	50.57	Brentwood Terminal to Irvington Station	24"	500	525	600	650

(4) The MOP is 720 psig when this section of L-131 is operated in conjunction with the HP Rio Vista Collection System.

(5) The MOP is 510 psig when this section of L-131 is operated in conjunction with the LP Rio Vista Collection System.

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
131	50.57	57.45	Irvington Station to Milpitas Terminal	30"	590	595	650	650
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
132	46.59	51.50	Martin Station to Potrero Plant	24"	145	145	275	275
132	10.32	0.00, 1.47	Sierra Vista Avenue to Rengstorff Avenue Station	16" & 24"	400	400	400	400
132	46.59	39.86	Martin Station to Geneva Avenue	20"	109	110	275	275
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
134	21.57	27.04	MP 21.57 to Arbios Meter Station	6"	500	500	720	720
134	27.04	30.50	Arbios Meter Station to MP 30.50	6" & 8"	500	500	720	720
134		34.13	Arbios Meter Station to Firebaugh Regulator Station	3" & 4"	500	500	720	720
136	0.00	2.64	Ord Bend Meter Station to MP 2.64	6"	479	565	720	720
136	5.14	12.89	MP 5.14 to Butte Station	6"	550	550	720	720
*137	0.00	11.83	Whipple and Albee Streets, Eureka to MP 11.83	4" & 6"	167	167	720	720
137	3.58	7.37	Ryan Slough Regulator Station to Arcata	8"	350	350	720	720
138A	0.00	14.94	Helm Tap Station to Helm Junction	16"	800 (7)	862	862	862
138B	0.00	14.71	Helm Tap Station to Helm Junction	20"	700	700	800	890
138	14.71	22.04	Helm Junction to Elkhorn Station	18"	800 (7)	865	865	890
138	20.50	22.04	Elkhorn Station to Burrel Meter Station	18"	650	650	865	720
138	22.04	38.59	Burrel Meter Station to Adams & Elm Meter and Regulator Station	16"	650	650	720**	720**

(6) Revised to conform to documented records.

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

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
138	38.59	49.42	Adams & Elm Meter Station to San Joaquin Division Gas Load Center	10",12" & 16"	650	650	720	720
138	43.58	50.02	T 43.58 to Chestnut & Clay Regulator Station	16"	650	650	720	720
138	45.10	46.64	MP 45.10 to Peach Avenue	10"	650	720	720	720
141E			Thornton Meter Station to E Thornton Field Collection System	4" & 6"	538	538	800	800
141W			Thornton Meter Station to W. Thornton Field Collection System	3" - 10"	768	768	800	800
*141			N.E.River Island & Walnut Grove Field Collection System	6" & 8"	768	768	800	800
142N	0.00	14.05	Bakersfield Tap to Bakersfield Meter Station	12",16",20"	475	475	720	720
142S	0.00	9.00	Gosford Road Meter Station to Brundage Lane Regulator	6" & 10"	600	600	720	720
*142	9.00	11.47	Brundage Lane Regulator to Bakersfield Meter Station	8" & 12"	300	300	720	720
*143			Millar Field Collection System	3" & 4"	792	800	800	800
144	0.00	3.50	Millar Meter Station to Millar Field	10" & 12"	792	796	800	800
145			Maine Prairie Field Collection System	3", 4", 6"	510	796	800	800
146	0.00	6.00	Maine Prairie Meter Station to Maine Prairie Field	8"	510	796	800	800
147	0.00	3.39	Edgewood Road Crossover to San Carlos Regulator Station	20" & 24"	400	400	400	400
148	0.00	17.63	McMullin Ranch Mixer Station to Morgan Road Station	8"	408	408	720	720
149			Winters Field Collection System	4" & 6"	750	750	800	800

SHEET 10 OF 30 SHEETS

P G&E CO.

DRAWING NUMBER 086868

REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
150	0.00		18.09	Winters Meter Station to Davis Meter Station	6"	750	750	800	800
151	0.42		14.05	Afton Odorizer Station to Afton Regulator Station	6"	250	250	720	720
152	0.00		0.42	Afton Field to Afton Odorizer Station	6"	250	250	720	720
153	0.00		18.00	Irvington Station to Marina Boulevard Station	30",32",34"	420	420	500**	500**
*153	18.00		27.89	Marina Boulevard Station to 2nd and Market Streets	24" & 30"	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"	246	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	0.00		5.72	Durham Field to Durham Field Meter Station	6"	680	680	800	800
158	4.90		13.65	Dunnigan Hills Field to Dunnigan Hills Meter & Regulator	6"	500	564	800	800
*158				Woodland Field Collection System	3" & 4"	500	564	800	800
159	0.00		0.65	Pleasant Creek Compressor Station to V 0.65	4"	975	975	1000	975
159	0.65		3.91	V 0.65 to Pleasant Creek Regulator Station	4"	975	975	1000	975
159	3.91		6.08	Pleasant Creek Regulator Station to Winters Meter Station	4"	750	750	800	800
159				Winters Field Collection System	4"	750	750	800	800

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*162	0.00		7.73	Tracy Station to Banta Regulator Station	6" & 8"	365	365	720	720
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
167	0.00		34.50	E. Beehive Bend Odorizer Station to Yuba City HPU	12" & 16"	800	800	800	800
167	0.00		4.60	Wild Goose Field Meter to Wild Goose Mixer & Odorizer Station (Parallel)	10"	800	800	800	800
167	4.60		6.54	Wild Goose Mixer to Gridley Junction	8"	800	800	800	800
167				Wild Goose Collection System	3" & 4"	800	800	800	800
167	4.12		7.60	Princeton Field Collection System	3"	800	800	800	800
167				Compton Landing Field Collection System	4" & 6"	800	800	800	800
167				Bounde Creek Field Collection System	4"	800	800	800	800
168				River Island Field Collection System HP	4", 6", 8"	800 720 (8)	800	800	800
168				River Island Field Collection System LP	3" - 8"	698	698	800	800
169				Beehive Bend, Willows, Llano Seco & Perkins Lake Field 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

(8) The MOP of Line 168 shall be 720 when operated in conjunction with Line 131.

P G & E CO.

SHEET 12 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
172	69.81	79.51	Swingle Junction to Sacramento Gas Plant	16"	500	520	720	720
172	0.00	0.60	Crosstie Between Line 172 and Line 167	10"	800	800	800	800
172	75.45	9.68	Crosstie Between Line 172 and Line 119	12"	500	520	720	720
*173	0.00	17.56	Line 123 (V 6.51) to Aurburn Regulator Station	4" 6" 8"	500	500	720	720
*174			Aurbuckle Field Collection System	2" - 10"	800	800	800	800
176			Roberts Island Field Collection System	2" - 8"	500	555	800	800
176	0.00	18.85	Roberts Island Field to Tracy Station	6" & 8"	500	555	800	800
177	0.00	0.87	Sacramento Avenue Junction to Grapeway Regulator Station	10"	819	819	960	960
177	0.86	7.13	Grapeway Regulator to Butte Station	6" & 10"	469	469	600	600
177	0.00	4.75	Fell Regulator & Odorizer to Sacramento Avenue Junction	16"	819	819	960	960
177	4.75	29.09	Sacramento Avenue Junction to Corning N. Dome Station	10"	819	819	960	960
177	0.00	2.19	Tap 27.60 to Tap 29.87 Parallel Section Near Corning N. Dome	6" & 8"	819	819	960	960
177	29.09	37.84	Corning N. Dome Station to Gerber Compressor Station	12"	819	819	960	960
177	37.84	163.04	Gerber Compressor Station to Cummings Creek PLS	12"	819	819	960	960

P G & E CO.

SHEET 13 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
177	163.04	178.18	Cummings Creek PLS to Tompkins Hill Meter & Regulator Sta.	12"	430	430	720	720
177	178.18	192.29	Tompkins Hill Meter & Regulator Station to Ryan Slough Regulator Station	12"	350	425	600	600
177	37.8	149.18	Crosstie Between Lines 177 and Line 400	12"	819	819	960	960
177	43.87	1.24	Tap to Red Bluff and Diamond National	6"	819	819	960	960
177			Rancho Capay Field Collection System	4"	819	819	960	960
179			Corning Field Collection System	6"	819	819	960	960
180			Kettleman Hills Field Collection System	8" - 20"	421	421	500	500
181A	0.00	1.56	Soap Lake Meter Station to V 1.56	10"	300	300	400	400
181A	6.19	20.15	V-6.19 to Watsonville Meter Station	10" & 12"	300	303	400	400
181B	0.00	10.85	Anzar Road Meter and Regulator to Watsonville Meter Station	10",16",20"	400	400	400	400
*182	0.00	16.77	Serpa "Y" to V-81	4" - 12"	400	435	800	800
182	16.77	18.23	V-81 to Shell Chemical Meter Station	4" - 12"	435	435	800	800
*182	18.23	18.87	Shell Chemical Meter Station to Suisun Junction Meter Station	12"	435	435	600	800
182			Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182			Suisun Field Collection System	2" - 6"	435	435	800	800

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
183	0.00		6.35	Firebaugh Regulator Station to Moffat Field Meter Station	3"	175	320	800	800
186	0.00		26.1	Dos Palos Meter Station to Red Top Regulator	3" 4" 6"	500	625	720	720
186	26.1		29.4	Red Top Regulator Station to Chowchilla Field	2" 3" 4"	500	960	960	960
187	0.00		22.58	San Ardo Field Meter Station to Jolon Road Regulator Station	6"	313	313	720	720
187	22.58		65.70	Jolon Road Regulator Station to Harkins Road Meter & Mixer Station	8"	313	313	720	720
189	0.00		1.72	Elk River Road Regulator Station to Humboldt Bay P.P.	10"	350	425	720	720
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
191	0.00		3.86	Antioch Terminal to Antioch Town Meter Station	30" & 34"	315	600	600	600
191				Antioch Town Meter Station Cross Tie	16"	315	600	600	600
191	3.87		9.93	MP 3.87 to MP 9.93 Via Pittsburg Power Plant	20" & 24"	315	390	600	600
191	9.93		25.30	MP 9.93 to Reliez Station Road Regulator Station	16" 20" &24"	315	338	600	600
*191	25.30		29.36	Reliez Station Road Regulator Station to Junction L-191	8" 10" & 12"	268	283	400	400

PG&E CO.

SHEET 15 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*191	29.36	32.76	Junction Line 191 to MP 32.76	10"	268	270	400	400
*191	32.76	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	0.00	1.53	Junction Line 191 to Reliez Valley Road Regulator Station	8"	268	283	400	400
193			Rice Creek Field Collection System	2" - 8"	819	960	960	960
193			Malton Field Collection System	4",6",8"	819	960	960	960
193			Kirkwood & Rice Creek Field North Collection System	6"	819	819	960	960
194	0.00	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 (HP)	2" - 16"	800 720 (9)	800	800	800
*195			Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
196	0.00	13.45	Las Vinas Station to Isleton Meter Station	8" & 12"	800 (9)	800	800	800
197A	0.25	21.41	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	21.41	31.23	MP 21.41 to MP 31.23	10" & 12"	320	720 (10)	720	720
197A	31.23	39.57	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	39.57	41.78	MP 39.57 to Calaveras Cement	8"	320	320	720	720

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

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

LINE OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
197B	0.25	5.50	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	21.47	31.24	V 21.47 to V 31.24	8"	320	320	720	720
197C	17.44	23.02	Ione Tap to MP 23.02	10"	385	720	720	720
199			Bunker Field Collection System	3" - 8"	792	796	800	800
200			W. Rio Vista Field Collection System (HP)	2" - 16"	800 (9)	800	800	800
*200			W. Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
200			W. Rio Vista Field Collection System (30 psig)	3" - 10"	400	510	800	800
200			Liberty Islands Field Collection 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
202	0.00	23.72	Grass Valley Tap to Regulator Station near Robin Avenue, Grass Valley	6" & 8"	400	720	720	600
203			Greens Lake Field Collection System	4"	500	800	800	800
204			Cheney Ranch Field 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

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

P G & E CO.

SHEET 17 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
208			Union Island Field to Lathrop Dehydrator Station	12"	825	1000	1000	1000
209			Line 400 to Line 128 at Willows	4"	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"	16" & 18"	650	650	740	720
210	1.40	19.47	Creed Station to Cordelia Regulator Station	32" & 34" replace with 26"	650	675	675	675
210	19.47	25.62	Cordelia Regulator to Napa "Y"	10" & 12"	650	650	~~800~~ 675	~~800~~ 675
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 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 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

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
300A	0.00		0.64	Colorado River to Topock Compressor Station	30" & 34"	660	700	700	700
300A	0.64		40.87	Topock Compressor Station to PLS 1A	34"	867	867	890	890
300A	40.87		103.72	PLS 1A to PLS 2A	34"	815	815	815	815
300A	103.72		130.37	PLS 2A to PLS 2AX	34"	688	688	688	688
300A	130.37		159.33	PLS 2AX to Hinkley Compressor Station	26" & 34"	573	573	573	573
300A	159.33		203.02	Hinkley Compressor Station to PLS 3A	34"	861	861	890	890
300A	203.02		256.21	PLS 3A to PLS 4A	34"	803	817	817	817
300A	256.21		299.01	PLS 4A to PLS 5A	34"	736	757	757	757
300A	299.01		353.85	PLS 5A to Kettleman Compressor Station	34"	669	688	688	688
300A	353.85		436.74	Kettleman Compressor Station to PLS 6A	34"	840	840	890	890
300A	436.74		461.07	PLS 6A to Pacheco Pass PLS	34"	715	715	715	715
300A	461.07		490.65	Pacheco Pass PLS to PLS 7A Silver Creek	34"	631	631	715	715
300A	490.65		502.34	PLS 7A to Milpitas Terminal Station	34"	558	558	676	676
300B	0.00		0.45	Colorado River to Topock Compressor Station	34"	660	660	735	735
300B	0.45		40.49	Topock Compressor Station to PLS 1B	34"	867	867	894	894
300B	40.49		103.51	PLS 1B to PLS 2B	34"	815	821	821	821
300B	103.51		130.40	PLS 2B to PLS 2BX	34"	688	688	688	688
300B	130.40		161.02	PLS 2BX to Hinkley Compressor Station	34"	573	573	573	573

P G & E CO.

SHEET 19 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
300B	161.02	203.07	Hinkley Compressor Station to PLS 3B	34"	861	861	897	897
300B	203.07	256.64	PLS 3B to PLS 4B	34"	803	816	816	816
300B	256.64	299.00	PLS 4B to PLS 5B	34"	736	757	757	757
300B	299.00	354.02	PLS 5B to Kettleman Compressor Station	34"	669	688	688	688
300B	354.02	436.85	Kettleman Compressor Station to PLS 6B	34"	840	840	890	890
300B	436.85	461.08	PLS 6B to Pacheco Pass PLS	34"	715	715	715	715
300B	461.08	490.92	Pacheco Pass PLS to PLS 7B Silver Creek	34"	631	631	715	715
300B	490.92	502.64	PLS 7B to Milpitas Terminal Station	34"	600	600 (11)	669	669
301G	0.00	24.68	Hollister Meter Station to Moss Landing Power Plant	24" & 30"	500	500	500	500
301A	0.00	24.84	Hollister Meter Station to Moss Landing Power Plant	20"	396	396	500	500
301B	0.00	14.02	Dolan Road Meter Station to Hilltown Regulator Station	12"	408	408	600	500
*301C	14.02	17.20	Hilltown Regulator Station to Harkins Road Meter and Mixer Station	8" & 12"	313	313	500	500
*301F	0.00	7.94	Espinosa Road to Marina Regulator Station	16"	408	412	412	412
*301E	0.00	1.02	Crosstie - Monterey #2 to Main 301	12"	408	408	500	500
301D	0.00	1.72	Anzar Tap Station to Anzar Road Meter & Regulator Station	10"	500	500	500	500
301H	0.00	1.72	Anzar Tap Station to Anzar Road Meter & Regulator Station	16"	500	500	500	500

(11) Revised to conform to documented records.

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Desing Press.	Future Design Press.
302				Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk, Moon Bend & Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	0.00		5.76	Buckeye Creek PLS to Hershey Junction	20"	975	975	1000	975
303	0.00		7.95	Antioch Terminal to Brentwood Terminal	36"	720	720	720	720
303	7.95		11.97	Brentwood Terminal to Vasco Road	36"	725	793 (11a)	864	864
303	11.97		20.43	Vasco Road to Dalton Avenue	36"	725	776 (11b)	864	864
303	20.43		25.54	Dalton Avenue to Livermore Junction	36"	725	864 (11c)	864	864
303	25.54		36.56	Livermore Junction to Sheridan Road PLS	36"	725	731 (11d)	877	877
303	36.56		42.86	Sheridan Road PLS to Irvington	36"	590	590	600	877
304	0.00		11.29	Tracy Station to Lathrop Dehydrator & Odorizer Station	12"	825	825	825	825
304				Lathrop Field Collection System	3" - 12"	825	825	825	825
306	0.00		43.3	Kettleman Compressor Station to Dry Creek PLS	20"	840	840	840	840
306	43.3		70.02	Dry Creek PLS to Morro Bay Power Plant	20"	650	650	840	840
307	0.00		16.36	Spreckels Sugar Meter Station to Spreckels Sugar Regulator	8"	500	500	915	890
307	12.05		16.92	Derrick Road Tap to Arbios Regulator Station	8"	500	890	915	890
311	0.00		54.44	Main 300 (V 180.64A) to Westend Primary Regulator Station	10" & 12"	700	700	960	890

(11a) The 793 psig MAOP of this Section of L-303 was established by hydrostatic test completed on 11/23/66.

(11b) The 776 psig MAOP of this Section of L-303 was established by hydrostatic test completed on 11/26/66.

(11c) The 864 psig MAOP of this new Section of L-303 was established by hydrostatic test completed on 11/22/77.

(11d) The 731 psig MAOP of this Section of L-303 was established by gas upgrating on 9/28/78.

P G & E CO.

SHEET 21 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to	MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
311	31.97		38.49	Parallel Section to MP 38.49	12"	700	810	960	890
312	0.00		8.00	Line 300A (T 273.27) to Paloma Field Meter Station	8"	736	740	820	820
313	0.00		34.4	Lucerne Valley Tap Meter Station to Permanente Company Meter	8" & 10"	573	573	720	720
314	0.00		24.19	Hinkley Compressor Station to 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
*314	29.00		43.18	MP 29.00 to Black Mountain Meter and Regulator Station	8" & 10"	293	293	720	720
*314				Tap to Riverside Cement	8"	293	293	720	720
*314				Tap to Airbase Road Meter Station	8"	293	293	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	960	960
331				Santa Nella Tap to Tri Valley Growers	4" & 6"	500	890	890	890
334				Poppy Ridge Field	4"	412	490 (12)	800	800
336				Harte Field Collection System	3"	412	800	800	800
372	0.00		3.7	Ridgecrest Tap to Ridgecrest Primary Regulator	6"	700	700	960	960
400	0.00		24.60	California-Oregon Border to Tionesta Compressor Station	36"	911	911	911	911

(12) Line 334 is a new line. The 490 psig MAOP was established by hydrostatic tests completed on 3/27/78.

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Trans. Line No.	MP	to MP	Description	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
400	24.60	48.64	Tionesta Compressor Station to Indian Springs PLS	36"	911	911	911	911
400	48.64	82.33	Indian Springs PLS to Burney Compressor Station	36"	911	911	911	911
400	82.33	104.20	Burney Compressor Station to MP 104.20	36"	911	911	911	911
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 Compressor Station	26" & 36"	911	911	911	911
400	149.18	180.77	Gerber Compressor Station to V-180.77	24" & 36"	911	911	911	911
400A	180.77	197.83	V 180.77 to Delevan Compressor Station	36"	911	911	911	911
400B	180.76	197.72	MP 180.76 to Delevan Compressor Station	36"	911	911	911	911
400	197.72	233.87	Delevan Compressor Station to Buckeye Creek PLS	36"	1040	1040	1040	1040
400	233.87	298.87	Buckeye Creek PLS to Antioch Terminal	26" & 36"	975	975	975	975
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
403	0.00	1.38	Rio Vista "Y" to Creed Station	16"	650[13]	800	855	800

[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.

LINES OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
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
Tap to Strain Ranch Dryer	4"	800	800	800	800
DE SABLA DIVISION					
Butte College Tap	3" & 4"	400	720	720	720
Orland Tap from L-177 to Second Stage Regulator	6"	490	490	720	720

61-4344 Rev 1-76

LINES OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Lion Oil Company Feeder	12"	315	338	600	600
Nichols Road Tap	4"	315	338	600	600
Pacific States Steel Feeder	12"	420	420	500	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	350	600
Concord Feeder to Alpha Beta Regulator	6" & 8"	315	600	600	600
Oleum Steam Plant Tap	8" 10" 12" 16"	250	250	275	275
San Ramon Feeder	16"	500	500	500	600
Standard Oil Feeder	22"	400	400	400	400
Rodeo Feeder	6" & 8"	204	204	400	400
Concord Feeder	8" 10" 12"	170	170	600	600
Antioch Feeder	6"	315	600	720	720
Danville Feeder	6" 8" 10"	315	338	600	600
Discovery Bay Feeder - From Line 57A to Secondary Stage Regulator (Bixler Road)	3" & 4"	867	867	867	867
Discovery Bay Feeder - From Bixler Road Regulator to Pt. of Timber Regulator	4" 6" 8"	400	400	400	400
Atlas Road Feeder	8"	400	400	400	400

P G & E CO.

SHEET 25 OF 30 SHEETS

DRAWING NUMBER 086868

REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter Station	8"	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
SACRAMENTO DIVISION(14)					
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"	500	500	500	800
Fairfield - Knolls Feeder	4"	500	500	500	800
Illinois Street 10" Feeder	6" & 10"	650	675	740	720
Gibson Feeder Main	6"	500	500	500	800

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

P G & E CO. SHEET 260F 30 SHEETS

DRAWING NUMBER 086868 REV. 0

MICROFILM

LINES OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
Sacramento Division (Continued)					
American Home Foods Feeder	2" & 4"	720	720	720	720
Vacaville Feeder	6"	400	400	400	400
Vacaville - Eldridge to Nut Tree Road	6"	400	400	720	720
Vacaville - Travis to Vacaville Junction	3", 4", 6"	400	400	400	400
Vacaville - SNRR to Elmira Road	3" & 6"	400	400	400	720
Anheuser Busch Feeder	2" & 4"	650	650	720	720
Fairfield Feeder - Scandia Road - Vaca Tap	10"	675	675	675	675
Fairfield Feeder - Scandia Road - Vaca Tap	12"	650	650	740	740
Robben Road Feeder - Dixon	6"	750	750	800	800
SAN FRANCISCO DIVISION					
Peninsula Main	16" & 20"	109	110 (14a)	275	275
Hunters Point Power Plant Feeder	20"	145	145	275	275
SAN JOAQUIN DIVISION					
Tranquility Feeder	3"	650	800	900	900
Yosemite Avenue Feeder	6"	400	720	720	720
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

(14a) Revised to conform to documented records.

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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"	300	720	720	720
Enterprise Town Feeder	4" & 6"	300	300	720	720
Calaveras Cement Company Feeder	8"	300	300	720	720
Red Bluff District Tap	2"	911	911	911	911

**See Paragraph 6

LINES OPERATING AT OR OVER 20% SMYS

LINES OPERATING AT OR OVER 20% SMYS

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.

LINES OPERATING AT OR OVER 20% SMYS

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"	625(18)	650	690	690
SACRAMENTO DIVISION						
Sacramento	78,452	34"	445	445	550	550
SAN JOAQUIN DIVISION						
Fresno	43,722	30"	650(18)	690	690	690
SAN JOSE DIVISION						
Santa Cruz	7,221	30"	618	618(19)	618	660
	4,838	34"	618	618(19)	618	660

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

(19) Revised to conform to documented records.

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:

1. 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.

2. 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

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

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 14h day of March 2011, at Walnut Creek, California.

/s/
JAMES R. GRINSTEAD

62-6218 (REV 9-70)

PG and E

FOR INTRA—COMPANY USES

DIVISION OR DEPARTMENT VICE PRESIDENT - GAS OPERATIONS
FILE NO 463
RE LETTER OF
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.

E. F. SIBLEY

JRGrinstead:sm

Attachment

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
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 PAGE NO. 1 EFFECTIVE 6/1/73

SUBJECT:

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

PURPOSE AND POLICY

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

RECISIONS

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

RESPONSIBILITY

3. Division Gas Superintendents and the Manager of Pipe Line Operations shall be responsible for the performance required by this Standard Practice. Performance will include reviews of design procedures for the lines and the records generated by the referenced Standard Practices any time a change in MOP, MAOP or DP is contemplated.

4. The Manager of Gas System Design will establish and confirm changes to MOP (PG&E), MAOP and DP.

REFERENCES

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

DEFINITIONS

*6. 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.

*. Paragraph Revised
** Paragraph Added

(SEE OVER)

62-7501 REV. 4-65

PACIFIC GAS AND ELECTRIC COMPANY
STANDARD PRACTICE

STANDARD PRACTICE NO. 463-8

EXECUTIVE OFFICE OR DIVISION GAS OPERATIONS

PAGE NO. 2 EFFECTIVE 5/1/75

ISSUING DEPARTMENT GAS SYSTEM DESIGN

REPLACING PAGE NO. 2 EFFECTIVE 6/1/73

SUBJECT:

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

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.

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

Specified Minimum Yield Strength (SMYS) is the minimum yield strength in psi prescribed by the specification under which pipe is purchased from the manufacturer or as specified in Section 192.107 of the current edition of G.O. 112.

APPLICATION

*7. Procedural details and supplemental data appear in addenda to this Standard Practice.

Supplement - Procedural Details
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

RECORD

8. Pressure Recording Charts and Operating Sheets (record of hourly data) which document the MAOP and/or MOP (PG&E) of pipelines and mains operating at or above 20% of SMYS shall be kept current by the Division and/or Pipe Line Operations Department assigned with the responsibility of maintenance and operation of facility.

SUPPLEMENT

9. The Supplement establishes the procedure for designating the MOP (PG&E), MAOP and DP for each facility.

APPROVED BY: E. F. Sibley
Vice President - Gas Operations

DISTRIBUTION:
Division Managers
Division Gas Superintendents
District Gas Superintendents
District Managers
Division Admin. Analyst or Equal
Director, Procedures Analysis
Pipe Line Operations

Additional copies of this Standard Practice may be obtained from Gas Operations, 77 Beale Street, San Francisco (PG&E Ext. 9-1604).

* Paragraph Revised

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"

* Paragraph Revised
** Paragraph Added

LINES IN TRANSMISSION CAPITOL OPERATING AT OR OVER 20% SMYS

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Futur Desig Press
21	Crockett Station (MP 0.00) to MP 0.54	24" & 26"	400	405	650	675
21	MP 0.54 to Herrmann Station (MP 1.52)	24"	400	675	675	675
21	Herrmann Station to Reis Avenue (MP 2.71)	16"	250	258	575**	575**
21	Reis Avenue to Napa "Y" (MP 12.05)	12"	250	375	585	585
21	Napa "Y" to MP 35.05	12" & 26"	450	450	675	675
21	MP 35.05 to MP 51.41	12"	450	500	720	675
21	MP 51.41 to Santa Rosa Compressor Station (MP 53.12)	12"	450	500	720	675
21	MP 53.12 to MP 110.4	12"	600	890	890	890
21	MP 110.4 to MP 111.2	12"	600	720	890	890
21	MP 111.2 to MP 111.9	12"	600	890	890	890
21	MP 111.9 to MP 112.1	12"	600	720	890	890
21	MP 112.1 to MP 113.9	12"	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 Station (MP 21.62)	8"	250	250	720**	720**
*50	Biggs Regulator Station to Richvale "Y" (MP 26.94)	6" & 8"	250	250	720**	720**
*50	Richvale "Y" to Stirling Junction (MP 44.87)	6" & 8"	400	400	720**	720**
50	MP 0.00 to Paradise (MP 7.81)	8"	400	720	720	720
56	Pleasant Creek Field Storage System	4"	1300	1300	1250	1440
56	Pleasant Creek Field Storage System	8"	1300	1440	1440	1440

**See Paragraph 6

(See Over)

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

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
57	McDonald Island Field Storage System	4" - 12"	2160	2160	2160	2160
57	McDonald Island Compressor Station (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)	18"	867	867	867	867
57B	Brentwood Terminal to McDonald Island	22"	2160	2160	2160	2160
100	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 Meter Station (MP 33.68)	20"	180	180	275	400
*101	San Francisco Meter Station Via 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)	12"	350	350	670**	500
103	California Street Regulator Station to Harkins Road Meter and Mixer Station (MP 26.63)	12"	313	313	670**	500
105	Irvington Station (MP 6.88) to San Lorenzo Regulator Station (MP 23.03)	20"	250	250	500	500
*105	San Lorenzo Regulator Station to San Pablo Station (MP 52.01)	20"	150	198	275	275
*105	Oakland Holder Station (MP 0.00) to 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 Pablo Station (MP 11.85)	24"	400	400	400	400
105S	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"	500	500	500	720

**See Paragraph 6

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"	477	480	500	720
107S	Irvington Station to Milpitas 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	720	890
108	Vernalis Field Mixing Station to McMullin Ranch Mixer Station (MP 8.79)	16"	408	408	720**	720**
108	McMullin Ranch Mixer Station to MP 16.7	16"	408	408	720**	720**
108	MP 16.7 to Las Vinas Station (MP 43.5)	16"	412	412***	720**	720**
108	Las Vinas Station to MP 56.25	16"	490	500	500	720
108	MP 56.25 to Sacramento Gas Plant (MP 75.10)	16"	412	412	500	720
*108	E. Hazleton & B Streets Regulator Station (MP 27.10) to Stockton Gas Plant (MP 1.71)	12"	185	185	275	275
109	Milpitas Terminal (MP 0.00) to 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 Junction (MP 21.65)	12"	650	650	800	720
111	Fresno Junction to Division Gas 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	800
114	West Rio Vista Field (MP 0.00) to Antioch Terminal (MP 9.01)	12" & 16"	510	510	800	800
114	Antioch Terminal to Brentwood Terminal (MP 16.59)	22"	595	595	595	720
114	Brentwood Terminal to Dalton Avenue PLS (MP 28.97)	22"	595	595	595	720
114	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)	8"	500	500	500	800
*116	Swingle Junction to Sacramento Gas Plant (MP 12.89)	8"	500	500	500	720

**See Paragraph 6

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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*118	Division Gas Load Center (MP 0.00) to Fresno Junction (MP 6.09)	8"	400	400	720	720
118	Division Gas Load Center (MP 0.00) to Fresno HPU Station (MP 0.66)	12"	690	690	720	720
*118	Fresno Junction to MP 12.57	12"	400	400	720	720
*118	MP 12.57 to Livingston (MP 73.26)	8"	400	400	720	720
118	Herndon (MP 0.00) to Athlone (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)	6"	400	400	400	400
118	Bradbury Road Regulator Station to 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 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	500	600
119	Sonoma Avenue Regulator and Del Paso Boulevard (MP 0.00) to Roseville Regulator Station (MP 5.25)	6"	180	500	500	500
120	Sutter Creek Field Collection System	4" & 6"	492	492	720	720
120	Sutter Buttes Field Collection System	4" & 6"	485	485	720	720
121	Marysville Buttes Meter Station (MP 0.00) to Yuba City HPU (MP 11.54)	6"	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 & 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

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 13.31) to MP 3.76	6"	400	400	720	600
125	Thompkins Hill Field Collection System	3" 4" 6"	448	448	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.57)	4"	350	442	720	720
126	Thompkins Hill Meter Station (MP 0.00) to Union Street Regulator (MP 10.89)	6"	350	442	720	720
126	Elk River Road Regulator (MP 0.00) to MP 3.62 (T 12.38, Line 126)	10"	167	167	720	720
*126	MP 0.00 to Eureka Propane (MP 0.36)	10"	167	167	720	720
126	Union Street Regulator to Line 137 (MP 12.61)	6"	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 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 (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 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

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
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 (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 38.59)	16"	650	650	720**	720**
138	Adams & Elm Meter Station to Cherry & Jensen Regulator (MP 45.00)	12" & 16"	650	650	720	720
138	MP 45.00 to San Joaquin Division Gas Load Center (MP 49.42)	10" & 12"	650	650	720	720
138	T 43.58 to Chestnut & Clay Regulator Station (MP 50.02)	16"	650	650	720	720
138	MP 45.10 to Peach Avenue (T 46.64)	10"	650	720	720	720
141E	Thornton Meter Station to E. Thornton Field Collection System	4" & 6"	538	538	800	800
141W	Thornton Meter Station to W. Thornton Field Collection System	3" - 10"	768	768	800	800
*141	N.E. River Island & Walnut Grove Field Collection System	6" & 8"	768	768	800	800
142N	Bakersfield Tap to Bakersfield Meter Station (MP 14.05)	12" 16" 20"	475	475	720	720
142S	Gosford Road Meter Station (MP 0.00) to Brundage Lane Regulator (MP 9.00)	6" & 10"	600	600	720	720
*142	MP 9.00 to Bakersfield Meter Station (MP 11.47)	8" & 12"	300	300	720	720
*143	Millar Field Collection System	3" & 4"	796	800	800	800

**See Paragraph 6

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	800	800
146	Maine Prairie Meter Station (MP 0.00) to Maine Prairie Field (MP 6.00)	8"	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"	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	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"	975	975	1000	975
159	V 0.65 to Pleasant Creek Regulator Station (MP 3.91)	4"	975	975	1000	975
159	Pleasant Creek Regulator Station to Winters Meter Station (MP 6.08)	4"	750	750	800	800
159	Winters Field Collection System	4"	750	750	800	800

**See Paragraph 6

(See Over)

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*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
167	E. Beehive Bend Odorizer Station (MP 0.00) to Yuba City HPU. (MP 34.50)	12" & 16"	800	800	800	800
167	Wild Goose Field Meter (MP 0.00) to Wild Goose Mixer & Odorizer Station (Parallel)	10"	800	800	800	800
167	Wild Goose Mixer to Gridley Junction (MP 6.54)	8"	800	800	800	800
167	Wild Goose Collection System	3" & 4"	800	800	800	800
167	Princeton Field Collection System (MP 4.12 to MP 7.60)	3"	800	800	800	800
167	Compton Landing Field Collection System	4" & 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	800	800
168	River Island Field Collection System LP	3" - 8"	698	698	800	800
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 (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) & Line 167 (MP 0.60)	10"	800	800	800	800
172	Crosstie Between Line 172 (MP 75.45) & Line 119 (MP 9.68)	12"	500	520	720	720
*173	Line 123 (MP 0.00) (V 6.51) to Auburn Regulator Station (MP 17.56)	4" 6" 8"	500	500	720	720
*174	Arbuckle Field Collection System	2" - 10"	800	800	800	800
176	Roberts Island Field Collection System	2" - 8"	555	555	800	800
176	Roberts Island Field (MP 0.00) to Tracy Station (MP 18.85)	6" & 8"	555	555	800	800
177	Sacramento Avenue Junction (MP 0.00) to Grapeway Regulator Station (MP 0.87)	10"	819	819	960	960

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 Corning N. Dome	6" & 8"	819	819	960	960
177	Corning N. Dome Station to Gerber Compressor Station (MP 37.84)	12"	819	819	960	960
177	Gerber Compressor Station to Cummings Creek PLS (MP 163.04)	12"	819	819	960	960
177	Cummings Creek PLS to Thompkins Hill Meter & Regulator Sta (MP 178.18)	12"	430	430	720	720
177	Thompkins Hill Meter & Regulator Station to Ryan Slough Regulator 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
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 Station (MP 11.19)	10" 16" 12"	300	303	400	400
*182	Serpa "Y" (MP 0.00) to Shell Chemical Meter Station (MP 18.23)	4" - 12"	435	435	800	800
*182	Shell Chemical Meter Sta. to Suisun Junction Meter Station (MP 18.87)	12"	435	435	600	800
182	Kirby Hills Field Collection System	3" - 8"	435	435	800	800
182	Suisun Field Collection System	2" - 6"	435	435	800	800
183	Firebaugh Regulator Sta. (MP 0.00) to Moffat Field Meter Sta. (MP 6.35)	3"	320	320	800	800
185	Hollister Field Collection System	4"	396	396	600	500
186	Dos Palos Meter Station (MP 0.00) to Red Top Regulator (MP 26.1)	3" 4" 6"	625	625	720	720

(See Over)

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 (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	2160	2160	2160
190	Coalinga Nose Storage Field to Union Oil Company (MP 16.22)	16"	2160	2160	2160	2160
191	Antioch Terminal (MP 0.00) to Los Medanos Junction (MP 5.81)	30" & 34"	315	600	600	600
191	MP 3.87 to MP 9.93 Via Pittsburg Power Plant	20" & 24"	315	390	600	600
191	MP 9.93 to Reliez Station Road Regulator Station	16" 20" 24"	315	338	600	600
*191	Reliez Station Road Regulator Station to MP 29.36	8" 10" 12"	268	283	400	400
*191	Junction Line 191 (MP 29.36) to MP 32.76	10"	268	270	400	400
*191	MP 32.76 to Martinez Meter and Regulator Station (MP 35.83)	10"	268	268	400	400
*191A	Junction Line 191 to Ardilla and Camino Pablo & Orinda Regulator Station	3" 6" 8"	268	283	400	400
*191B	Junction Line 191 to Reliez Valley Road Regulator Station	8"	268	283	400	400
193	Rice Creek Field Collection System	2" - 8"	819	960	960	960
193	Malton Field Collection System	4" 6" 8"	819	960	960	960
193	Kirkwood & Rice Creek Field North Collection System	6"	819	819	960	960
194	McMullin Ranch Mixer (MP 0.00) to MP 2.83	8" & 10"	437	437	800	800
194	McMullin Field Dehydrator Station (MP 0.00) to California Ammonia Company (MP 4.39)	6"	437	437	960	960
194	McMullin Ranch Field Collection System	2" & 10"	437	437	800	800
195	Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800

Trans. Line No.	Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
*195	Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
196	Las Vinas Station (MP 0.00) to Isleton Meter Station (MP 13.45)	8" & 12"	800	800	800	800
197A	Las Vinas Station to MP 21.41	10"	385	388	720	720
197A	MP 21.41 to MP 31.23	10" & 12"	320	500	720	720
197A	MP 31.23 to MP 39.57	12"	320	320	720	720
197A	MP 39.57 to Calaveras Cement	8"	320	320	720	720
197B	Las Vinas Station to MP 5.50	6"	385	388	720	720
197B	V 19.57 to V 31.24	8"	320	320	720	720
197C	Ione Tap to MP 23.02	10"	385	720	720	720
199	Bunker Field Collection System	3" - 8"	796	796	800	800
200	W. Rio Vista Field Collection System (HP)	2" - 16"	800	800	800	800
*200	W. Rio Vista Field Collection System (LP)	2" - 16"	510	510	800	800
200	Liberty Islands Field Collection System	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	675	675	675
210	V 27.67 (MP 0.00) to Humble Oil Meter Station	18"	650	720	720	675

(See Over)

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 Meter & Regulator Station (MP 22.01)	8" 10" 12"	796	796	800	800
220	Davis Meter & Regulator to Dunnigan Meter & Regulator Station (MP 34.11)	6" & 8"	500	500	500	800
300A	Colorado River (MP 0.00) to Topock Compressor Station (MP 0.64)	30" & 34"	660	700	700	700
300A	Topock Compressor Station to PLS 1A (MP 40.87)	34"	867	867	890	890
300A	PLS 1A to PLS 2A (MP 103.72)	34"	815	815	815	815
300A	PLS 2A to PLS 2AX (MP 130.37)	34"	688	688	688	688
300A	PLS 2AX to Hinkley Compressor Station (MP 159.33)	26" & 34"	573	573	573	573
300A	Hinkley Compressor Station to PLS 3A (MP 203.02)	34"	861	861	890	890
300A	PLS 3A to PLS 4A (MP 256.21)	34"	803	817	817	817
300A	PLS 4A to PLS 5A (MP 299.01)	34"	736	757	757	757
300A	PLS 5A to Kettleman Compressor 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

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)	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) to Moss Landing Power Plant (MP 24.84)	20"	396	396	500	500
301B	Dolan Road Meter Station (MP 0.00) to Hilltown Regulator Station (MP 14.02)	12"	408	408	600	500
*301C	Hilltown Regulator Station to Harkins Road Meter and Mixer Station (MP 17.20)	8" & 12"	313	313	500	500
*301F	Espinosa Road (MP 0.00) to Marina 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 Meter & Regulator Station (MP 1.72)	10"	500	500	500	500
301H	Anzar Tap Station to Anzar Road Meter & Regulator Station	16"	500	500	500	500
302	Sutter Buttes, W. Butte, Butte Slough, Grimes, Sycamore, Kirk & Buckeye Field Collection System	2" - 20"	1000	1000	1000	1000
302	Buckeye Creek PLS (MP 0.00) to Hershey Junction (MP 5.76)	20"	975	975	1000	975
303	Antioch Terminal to Brentwood Terminal (MP 7.86)	36"	720	720	720	720
303	Brentwood Terminal to Irvington Station (MP 42.83)	36"	590	590	600	600
304	Tracy Station (MP 0.00) to Lathrop Dehydrator & Odorizer Station (MP 11.29)	12"	825	825	825	825
304	Lathrop Field Collection System	3" - 12"	825	825	825	825
306	Kettleman Compressor Station (MP 0.00) to Dry Creek PLS (MP 43.3)	20"	840	840	840	840

(See Over)

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 Regulator (MP 16.36)	8"	500	500	915	890
307	Derrick Road Tap (MP 0.00) to Arbios Regulator Station (MP 4.95)	8"	500	890	915	890
311	Main 300 (MP 0.00) (V 180.64A) to Westend Primary Regulator Station (MP 54.44)	10" & 12"	700	700	960	890
311	Parallel Section (MP 31.97) to MP 38.49	12"	700	810	960	890
312	Line 300A (MP 0.00) (T 273.27) to Paloma Field Meter Station (MP 8.00)	8"	736	740	820	820
313	Lucerne Valley Tap Meter Station to Permanente Company Meter (MP 34.4)	8" & 10"	573	573	720	720
314	Hinkley Compressor Station (MP 0.00) to MP 24.19	12"	861	861	890	890
314	MP 24.19 to MP 29.00	10"	260	260	720	720
314	MP 29.00 to Black Mountain Meter & Regulator Station (MP 43.18)	8" & 10"	260	260	720	720
314	Tap to Riverside Cement	8"	260	260	720	720
314	Tap to Airbase Road Meter Station	8"	260	260	720	720
*316	Dutch Slough & River Break Field Collection System	2" - 12"	800	800	800	800
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 (MP 24.60)	36"	911	911	911	911
400	Tionesta Compressor Station to Indian Springs PLS (MP 48.64)	36"	911	911	911	911
400	Indian Springs PLS to Burney Compressor Station (MP 82.33)	36"	911	911	911	911
400	Burney Compressor Station to MP 104.20	36"	911	911	911	911
400	MP 104.20 to Shingletown PLS (MP 115.26)	36"	911	915	942	942
400	Shingletown PLS to Gerber Compressor Station (MP 149.18)	36"	911	911	911	911

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	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 PLS (MP 9.96)	12"	300	300	865	865
402	MP 9.96 to Calaveras Cement Tap (MP 38.10)	8" 10" 12"	300	300	720	720
403	Rio Vista "Y" (MP 0.00) to Creed Station (MP 1.38)	16"	650	650	855	800

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

DISTRIBUTION MAINS
OPERATING AT OR OVER 20% SMYS

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design 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 Station	8"	313	313	500	500
Salinas Main - Foster Road to San Miguel Avenue	8"	313	313	500	500
DFM-6 Espinosa Road Main from 301-B, V-3.18	6"	408	500	720	500
DFM-7 Union Carbide Main from 187, MP 17.42	3"	313	313	720	870
DFM-8 Paradise Road to Meridian Road Main	4" & 6"	500	500	720	500
COLGATE DIVISION					
Yuba City HPU Holder to Market Street Regulator Pit	6" & 8"	135	135	400	400
Tap to Schohr Ranch	6"	250	250	720	720
DRUM DIVISION					
Diamond Oaks Feeder	6"	500	500	500	600
EAST BAY DIVISION					
Avon Power Station Feeder	8" & 12"	315	338	600	600
Phillips Petroleum Company Feeder	12"	315	338	600	600
General Chemical Tap	4"	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

(See Over)

Location	Nominal Pipe Diameter (Inches)	PG&E MOP psig	MAOP	Design Press.	Future Design Press.
NORTH BAY DIVISION					
Cotati Feeder	8"	450	500	675	675
12" Line 21 (V-16.15) to Pine Street Meter Station	8"	450	500	675	675
12" Line 21 (V-16.15) to Kilburn Regulator 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
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"	400	720	720	720
Cressey Way Feeder	4" & 6"	400	400	720	720
Valley Nitrogen Feeder	6"	650	650	800	720
SAN JOSE DIVISION					
Half Moon Bay Feeder Line	8" 10" 12"	400	577	577**	577**
Santa Cruz to Davenport	10" & 12"	300	303	557**	400
Milpitas Terminal to PLS #7, Kings Road, 20" Feeder	16" 20" 30"	200	200	275	526
Watsonville to River Street Regulator Station	8" & 10"	300	303	577**	400
Watsonville to Rob Roy Junction	10"	300	303	557**	400

**See Paragraph 6

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	2"	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	400	400
*Turlock to Ceres Regulator Station	10"	250	260	720	720

(See Over)

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

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

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/
Rene Anita Thomas

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
EMAIL SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

ajahns@jahnsatlaw.com;alf@cpuc.ca.gov;austin.yang@sfgov.org;bcragg@goodinmacbride.com;bfinkelstein@turn.org;bkc7@pge.com;bob.gorham@fire.ca.gov;case.admin@sce.com;cem@newsdata.com;CentralFiles@SempraUtilities.com;centralfiles@semprautilities.com;cleo.zagrean@macquarie.com;d1ct@pge.com;dgenasci@DayCarterMurphy.com;dmarcus2@sbcglobal.net;Don.soderberg@swgas.com;douglas.porter@sce.com;douglass@energyattorney.com;filings@a-klaw.com;gclark@lodistorage.com;GHealy@semprautilities.com;gloria.ing@sce.com;J4LR@pge.com;jason.dubchak@niskags.com;jheckler@levincap.com;jleslie@luce.com;JLSalazar@SempraUtilities.com;jzr@cpuc.ca.gov;kck5@pge.com;kelder@aspeneg.com;klatt@energyattorney.com;kmmj@pge.com;laura@messimer.com;mab@cpuc.ca.gov;marcel@turn.org;marcie.milner@shell.com;mdjoseph@adamsbroadwell.com;Mike@alpinenaturalgas.com;mrw@mrwassoc.com;mwt@cpuc.ca.gov;npedersen@hanmor.com;pap@cpuc.ca.gov;priscila.castillo@lawp.com;pucservice@dralegal.org;RCavalleri@SempraUtilities.com;regrelcpuccases@pge.com;rkoss@adamsbroadwell.com;Robert.F.Lemoine@sce.com;robert.pettinato@ladwp.com;RPrince@SempraUtilities.com;rrussell@lodistorage.com;scittad@nicor.com;Service@spurr.org;sls@a-klaw.com;SNewsom@SempraUtilities.com;tcollier@buckeye.com;tomb@crossborderenergy.com;ttutt@smud.org;westgas@aol.com;wschmidt@buckeye.com;wvm3@pge.com;wwester@smud.org;

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

Total number of addressees: 65

MELISSA A. KASNITZ ATTORNEY
DISABILITY RIGHTS ADVOCATES
2001 CENTER ST, FOURTH FLR
BERKELEY CA 94704-1204
(DisabRA) Disability Rights Advocates
Email: pucservice@dralegal.org
Status: PARTY

PACIFIC GAS AND ELECTRIC COMPANY
EMAIL ONLY
EMAIL ONLY CA 0
Email: regrelcpuccases@pge.com
Status: INFORMATION

KRISTINA M. CASTRENCE
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE ST., MC B10A
SAN FRANCISOC CA 84105
Email: kmmj@pge.com
Status: INFORMATION

DAREN CHAN
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE ST., MC B10C
SAN FRANCISCO CA 94105
Email: d1ct@pge.com
Status: INFORMATION

KERRY C. KLEIN ATTORNEY
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE ST., MC B30A
SAN FRANCISCO CA 94105
Email: kck5@pge.com
Status: INFORMATION

JANET LIU
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000; MC B9A
SAN FRANCISCO CA 94177
Email: J4LR@pge.com
Status: INFORMATION

BRIAN K. CHERRY VP - REGULATORY RELATIONS
PACIFIC GAS & ELECTRIC COMPANY
77 BEALE ST., MC B10C, PO BOX 770000
SAN FRANCISCO CA 94177
FOR: Pacific Gas and Electric Company
Email: bkc7@pge.com
Status: PARTY

WILLIAM V. MANHEIM ATTORNEY
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE ST., MC B30A
SAN FRANCISCO CA 94105
FOR: Pacific Gas and Electric Company
Email: wvm3@pge.com
Status: PARTY

Maribeth A. Bushey
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF ADMINISTRATIVE LAW JUDGES
505 VAN NESS AVE RM 5018
SAN FRANCISCO CA 94102-3214
Email: mab@cpuc.ca.gov
Status: STATE-SERVICE

Paul A. Penney
CALIF PUBLIC UTILITIES COMMISSION
SAFETY & RELIABILITY BRANCH
505 VAN NESS AVE AREA 2-D
SAN FRANCISCO CA 94102-3214
Email: pap@cpuc.ca.gov
Status: STATE-SERVICE

Jonathan J. Reiger
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
505 VAN NESS AVE RM 5035
SAN FRANCISCO CA 94102-3214
Email: jzr@cpuc.ca.gov
Status: STATE-SERVICE

Matthew Tisdale
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
505 VAN NESS AVE RM 5303
SAN FRANCISCO CA 94102-3214
Email: mwt@cpuc.ca.gov
Status: STATE-SERVICE

JASON A. DUBCHAK
WILD GOOSE STORAGE LLC
607 8TH AVE S.W., STE 400
CALGARY AB T2P OA7 CANADA
FOR: Wild Goose Storage, LLC
Email: jason.dubchak@niskags.com
Status: PARTY

MARC D. JOSEPH
ADAMS BROADWELL JOSEPH & CARDOZO
601 GATEWAY BLVD., STE. 1000
SOUTH SAN FRANCISCO CA 94080-7037
Email: mdjoseph@adamsbroadwell.com
Status: INFORMATION

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

Total number of addressees: 65

DAVID MARCUS
ADAMS BROADWELL & JOSEPH
PO BOX 1287
BERKELEY CA 94701-1287
Email: dmarcus2@sbcglobal.net
Status: INFORMATION

KAREN TERRANOVA
ALCANTAR & KAHL
33 NEW MONTGOMERY ST., STE. 1850
SAN FRANCISCO CA 94105
Email: filings@a-klaw.com
Status: INFORMATION

CATHERINE M. ELDER
ASPEN ENVIRONMENT GROUP
8801 FOLSOM BLVD., STE 290
SACRAMENTO CA 95826
Email: kelder@aspeneg.com
Status: INFORMATION

TRANSMISSION EVALUATION UNIT
CALIFORNIA ENERGY COMMISSION
1516 NINTH ST, MS-46
SACRAMENTO CA 95814-5512
FOR: California Energy Commission
Status: PARTY

JOYCE ALFTON
CALIOFRNIA PUBLIC UTILITIES COMMISSION
EMAIL ONLY
EMAIL ONLY CA 0
Email: alf@cpuc.ca.gov
Status: STATE-SERVICE

AUSTIN M. YANG
CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CITY ATTORNEY, RM. 234
1 DR. CARLTON B. GODDLETT PLACE
SAN FRANCISCO CA 94102-4682
FOR: City and County of San Francisco
Email: austin.yang@sfgov.org
Status: PARTY

THOMAS BEACH
CROSSBORDER ENERGY
2560 9TH ST., STE 213A
BERKELEY CA 94710-2557
Email: tomb@crossborderenergy.com
Status: INFORMATION

SEEMA SRINIVASAN
ALCANTAR & KAHL
33 NEW MONTGOMERY ST., STE 1850
SAN FRANCISCO CA 94105
Email: sls@a-klaw.com
Status: INFORMATION

MIKE LAMOND CHIEF FINANCIAL OFFICER
ALPINE NATURAL GAS OPERATING CO. #1 LLC
PO BOX 550, 15 ST. ANDREWS ROAD
VALLEY SPRINGS CA 95252
FOR: Alpine Natural Gas
Email: Mike@alpinenaturalgas.com
Status: PARTY

CALIFORNIA ENERGY MARKETS
425 DIVISADERO ST. STE 303
SAN FRANCISCO CA 94117-2242
Email: cem@newsdata.com
Status: INFORMATION

BOB GORHAM DIVISION CHIEF -PIPELINE SAFETY DIVISION
CALIFORNIA STATE FIRE MARSHALL
3950 PARAMOUNT BLVD., NO. 210
LAKEWOOD CA 90712
FOR: California State Fire Marshall - Safety Division
Email: bob.gorham@fire.ca.gov
Status: PARTY

STEPHEN CITTADINE
CENTRAL VALLEY GAS STORAGE, LLC
3333 WARRENVILLE ROAD, STE. 630
LISLE IL 60532
FOR: Central Valley Gas Storage, LLC
Email: scittad@nicor.com
Status: PARTY

RACHAEL E. KOSS
ADAMS BROADWELL JOSEPH & CARDOZO
601 GATEWAY BLVD, STE 1000
SOUTH SAN FRANCISCO CA 94080
FOR: Coalition of California Utility Employees
Email: rkoss@adamsbroadwell.com
Status: PARTY

DIANA S. GENASCI ATTORNEY
DAY CARTER & MURPHY LLP
3620 AMERICAN RIVER DRIVE, STE. 205
SACRAMENTO CA 95864
Email: dgenasci@DayCarterMurphy.com
Status: INFORMATION

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

Total number of addressees: 65

GREGORY KLATT
DOUGLASS & LIDDELL
411 E. HUNTINGTON DR., NO. 107-356
ARCADIA CA 91006
Email: klatt@energyattorney.com
Status: INFORMATION

RICHARD DANIEL
GILL RANCH STORAGE, LLC
220 NW SECOND AVE
PORTLAND OR 97209
FOR: Gill Ranch Storage, LLC
Status: PARTY

JAMES J. HECKLER
LEVIN CAPITAL STRATEGIES
EMAIL ONLY
EMAIL ONLY NY 0
Email: jheckler@levincap.com
Status: INFORMATION

WILLIAM H. SCHMIDT, JR
LODI GAS STORAGE, LLC
FIVE TEK PARK
9999 HAMILTON BLVD
BREINIGSVILLE PA 18031
FOR: Lodi Gas Storage, LLC
Email: wschmidt@buckeye.com
Status: PARTY

ROBERT RUSSELL
LODI GAS STORAGE, LLC
EMAIL ONLY
EMAIL ONLY CA 0
Email: rrussell@lodistorage.com
Status: INFORMATION

ROBERT L. PETTINATO
LOS ANGELES DEPT. OF WATER & POWER
111 NORTH HOPE ST., RM. 1150
LOS ANGELES CA 90012
Email: robert.pettinato@ladwp.com
Status: INFORMATION

CLEO ZAGREAN
MACQUARIE CAPITAL (USA)
EMAIL ONLY
EMAIL ONLY NY 0
Email: cleo.zagrean@macquarie.com
Status: INFORMATION

LAURA SEMIK
PO BOX 1107
BELMONT CA 94002
Email: laura@messimer.com
Status: INFORMATION

BRIAN T. CRAGG
GOODIN, MACBRIDE, SQUERI, DAY & LAMPREY
505 SANSOME ST, STE 900
SAN FRANCISCO CA 94111
Email: bcragg@goodinmacbride.com
Status: INFORMATION

SCOTT COLLIER
LOCI GAS STORAGE, LLC
EMAIL ONLY
EMAIL ONLY CA 0
Email: tcollier@buckeye.com
Status: INFORMATION

GREG CLARK COMPLIANCE MGR.
LODI GAS STORAGE, LLC
EMAIL ONLY
EMAIL ONLY CA 0
Email: gclark@lodistorage.com
Status: INFORMATION

PRISCILLA CASTILLO
LOS ANGELES DEPT OF WATER & POWER
111 NORTH HOPE ST., RM. 340
LOS ANGELES CA 90012
Email: priscila.castillo@lawp.com
Status: INFORMATION

JOHN W. LESLIE
LUCE FORWARD HAMILTON & SCRIPPS LLP
600 WEST BROADWAY, STE 2600
SAN DIEGO CA 92101
Email: jleslie@luce.com
Status: INFORMATION

MRW & ASSOCIATES, LLC
EMAIL ONLY
EMAIL ONLY CA 0
Email: mrw@mrwassoc.com
Status: INFORMATION

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

Total number of addressees: 65

WILLIAM W. WESTERFIELD III
SACRAMENTO MUNICIPAL UTILITY DISTRICT
6201 S ST., MS B406 / PO BOX 15830
SACRAMENTO CA 95852-1830
FOR: Sacramento Municipal Utility District
Email: wwester@smud.org
Status: PARTY

TIMOTHY TUTT
SACRAMENTO MUNICIPAL UTILITY DISTRICT
6201 S ST, MS B404 / PO BOX 15830
SACRAMENTO CA 95817
Email: ttutt@smud.org
Status: INFORMATION

ALFRED F. JAHNS
LAW OFFICE ALFRED F. JAHNS
3620 AMERICAN RIVER DRIVE, STE 105
SACRAMENTO CA 95864
FOR: Sacramento Natural Gas Storage, LLC
Email: ajahns@jahnsatlaw.com
Status: PARTY

JOSEPH KLOBERDANZ
SAN DIEGO GAS & ELECTRIC COMPANY
PO BOX 1831
SAN DIEGO CA 92112
FOR: San Diego Gas & Electric Company
Status: PARTY

CENTRAL FILES
SDG&E AND SOCALGAS
8330 CENTURY PARK COURT, CP31-E
SAN DIEGO CA 92123-1550
Email: CentralFiles@SempraUtilities.com
Status: INFORMATION

MARCIE A. MILNER
SHELL ENERGY NORTH AMERICA (US), L.P.
4445 EASTGATE MALL, STE. 100
SAN DIEGO CA 92121
Email: marcie.milner@shell.com
Status: INFORMATION

CASE ADMINISTRATION
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE, PO BOX 800
ROSEMEAD CA 91770
Email: case.admin@sce.com
Status: INFORMATION

RONALD S. CAVALLERI
SOUTHERN CALIFORNIA GAS COMPANY
555 W. FIFTH ST, GT14D6
LOS ANGELES CA 90013-1011
Email: RCavalleri@SempraUtilities.com
Status: INFORMATION

CENTRAL FILES
SOUTHERN CALIFORNIA GAS COMPANY
555 W. FIFTH ST, GT14D6
LOS ANGELES CA 90013-1011
Email: centralfiles@semprautilities.com
Status: INFORMATION

GREG HEALY
SOUTHERN CALIFORNIA GAS COMPANY
555 W. FIFTH ST., GT14D6
LOS ANGELES CA 90013
Email: GHealy@semprautilities.com
Status: INFORMATION

GLORIA ING ATTORNEY
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE
ROSEMEAD CA 91770
Email: gloria.ing@sce.com
Status: INFORMATION

ROBERT F. LEMOINE ATTORNEY
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE. STE 346L
ROSEMEAD CA 91770
Email: Robert.F.Lemoine@sce.com
Status: INFORMATION

RASHA PRINCE
SOUTHERN CALIFORNIA GAS COMPANY
555 WEST 5TH ST, GT14D6
LOS ANGELES CA 90013-1034
Email: RPrince@SempraUtilities.com
Status: INFORMATION

JEFFREY L. SALAZAR
SOUTHERN CALIFORNIA GAS COMPANY
555 WEST FIFTH ST, GT14D6
LOS ANGELES CA 90013
Email: JLSalazar@SempraUtilities.com
Status: INFORMATION

THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA SERVICE LIST

Last Updated: March 14, 2011

CPUC DOCKET NO. R1102019

Total number of addressees: 65

SID NEWSOME
SOUTHERN CALIFORNIA GAS COMPANY
555 WEST FIFTH ST, GT14D6
LOS ANGELES CA 90013-1011
FOR: Southern California Edison Company
Email: SNewsom@SempraUtilities.com
Status: PARTY

NORMAN A. PEDERSEN ATTORNEY
HANNA & MORTON
444 S. FLOWER ST, STE 1500
LOS ANGELES CA 90071
FOR: Southern California Generation Coalition
Email: npedersen@hanmor.com
Status: PARTY

MICHAEL ROCHMAN MANAGING DIRECTOR
SPURR
1850 GATEWAY BLVD., STE 235
CONCORD CA 94520
Email: Service@spurr.org
Status: INFORMATION

MARCEL HAWIGER
THE UTILITY REFORM NETWORK
115 SANSOME ST, STE 900
SAN FRANCISCO CA 94104
FOR: The Utility Reform Network
Email: marcel@turn.org
Status: PARTY

RAYMOND J. CZAHAR CHIEF FINANCIAL OFFICER
WEST COAST GAS CO., INC.
9203 BEATTY DR.
SACRAMENTO CA 95826-9702
FOR: West Coast Gas Company, Inc.
Email: westgas@aol.com
Status: PARTY

DOUGLAS PORTER ATTORNEY
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE
ROSEMEAD CA 91770
FOR: Southern California Edison Company (Catalina Island)
Email: douglas.porter@sce.com
Status: PARTY

DONALD L. SODERBERG
SOUTHWEST GAS CORPORATION
PO BOX 98510
LAS VEGAS NV 89193
FOR: Southwest Gas Corporation
Email: Don.soderberg@swgas.com
Status: PARTY

ROBERT FINKELSTEIN LEGAL DIRECTOR
THE UTILITY REFORM NETWORK
115 SANSOME ST, STE 900
SAN FRANCISCO CA 94104
Email: bfinkelstein@turn.org
Status: INFORMATION

DANIEL W. DOUGLASS
DOUGLASS & LIDDELL
21700 OXNARD ST., STE. 1030
WOODLAND HILLS CA 91367
FOR: Transwestern Pipeline Company
Email: douglass@energyattorney.com
Status: INFORMATION