Issuing Department GAS SYSTEM TECHNICAL SUPPORT

Effective Date 11/1/82

Gas Supply Officer W R MAZOTTI

SUBJECT

CLASS LOCATION DETERMINATION AND MAINTENANCE PIPELINES OPERATING OVER 40% SMYS

GENERAL NOTE.

This Gas Supply Interim Standard replaces existing PG&E Standard Practice 460-1 Minor editing has been done to reflect organizational changes, but the requirements of the original Standard Practice have not been changed The interim standard will be reviewed and revised in the near future Comments on or suggested revisions to this interim standard should be sent to the Director, System Standards Management (SYC3), in the Gas System Technical Support Department

PURPOSE AND POLICY

1 To establish a class location for all pipelines having established Maximum Allowable Operating Pressures (MAOP), which produce a hoop stress in excess of 40% of Specified Minimum Yield Strength (SMYS) of the pipe material

2 To determine and report class location changes for all pipelines classified under Paragraph 1 on a continuing basis Surveys will be conducted and a report filed with the California Public Utilities Commission, as required, in accordance with the current edition of General Order 112

DEFINITIONS

3 The following terms are used in this Standard

a Class Location A geographic area classified according to the count of buildings intended for human occupancy and other characteristics that are considered when prescribing design factor, operation, maintenance, and testing of pipelines located, or to be located in the area The class locations are determined by applying the criteria set forth in this paragraph The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline Except as provided below, the class location is determined by the number of buildings intended for human occupancy in the class location unit For the purposes of this section, each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy

(i) Class1 Location

A Class 1 location is any class location unit that has ten or fewer buildings intended for human occupancy All areas offshore are a Class 1 location

(ii) Class 2 Location

A Class 2 location is any class location unit that has more than ten but fewer than 46 buildings intended for human occupancy

(iii) Class 3 Location

A Class 3 location is

(a) Any class location unit that has 46 or more buildings intended for human occupancy, or

(b) An area where the pipeline lies within 100 yards of any of the following

A building that is occupied by 20 or more persons during normal use

A small, well defined outside area that is occupied by 20 or more persons during normal use, such as a playground, recreation area, outdoor theater, or other place of public assembly

(iv) Class 4 Location

A Class 4 location is any class location unit where buildings with four or more stories above ground are prevalent

(v) The boundaries of the class locations determined as outlined in this paragraph may be adjusted as follows

(a) A Class 4 location ends 220 yards from the nearest building with four or more stories above ground

(b) When a cluster of buildings intended for human occupancy requires a Class 3 location, the Class 3 location ends 220 yards from the nearest building in the cluster

(c) When a cluster of buildings intended for human occupancy requires a Class 2 location, the Class 2 location ends 220 yards from the nearest building in the cluster

(d) Where a Class 3 location is caused by a building that is occupied by twenty or more persons during normal use, or by a small, well defined outside area that is occupied by twenty or more persons during normal use, the Class 3 location ends 100 yards from the building or the edge of the well defined outside area

b Class Location Change A class location change occurs when the building count or the other factors described in 3a exceed the limit set for the existing class location

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c Maximum Allowable Operating Pressure (MAOP) The maximum pressure at which a pipeline or segment of a pipeline may be operated in accordance with all of the applicable provisions of the current edition of 49CFR Part 192

d Specified Minimum Yield Strength (SMYS)

(i) For steel pipe manufactured in accordance with a listed specification, the yield strength specified as a minimum in that specification, or

(ii) For steel pipe manufactured in accordance with an unknown or unlisted specification, the yield strength determined in accordance with §192 107(b) of 49CFR Part 192

e Design Factor A-construction specification for pipelines that limits the stress level at which it may operate For design factors, refer to 49CFR Part 192

f Pipeline 49CFR Part 192 defines pipeline as "all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies " However, as used in this Standard pipeline refers to numbered transmission lines, and distribution feeder mains with an MAOP which produces a hoop stress in excess of 40% of SMYS

RECISSIONS

4 Previously issued instructions, oral or written, which may be contrary to this Standard

REFERENCES

5 G O 112, issued by California Public Utilities Commission As used herein G O 112 shall refer to General Order 112-E

49CFR Part 192, US DOT, "Transportation of Natural and Other Gas by Pipeline Minimum Federal Safety Standards "

GS Interim Standard 463-7, "Pipeline and Mains History File, Establishing and Maintaining "

GS Interim Standard 463-8, "Maximum Operating Pressures of Pipelines and Mains Operating at or above 20% of SMYS "

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RESPONSIBILITY

6 The Division or Gas System Maintenance (GSM) District supervisor, who directs the maintenance and operation of the facilities, shall be responsible for the continuing surveillance of the facilities required by 49CFR Part 192, and for the annual class location survey Performance shall include

a Preparing records and maps indicating present class location

b Setting up procedures for continuing observation of all factors relevant to the determination of class location

c Analyzing the effect that construction work within 220 yards of the pipeline would have on the class location

d Making an immediate report to the Manager, GSM, when it appears that construction of a new building or facility has or will cause a class location change and where the pipeline does not appear to be commensurate with the new class location

e When a class location change has occurred and the pipeline is commensurate with the new class location, an immediate report is not required However, the new class location shall be indicated on the "Pipeline Survey Sheet (drawing 385121) "

7 The Pipeline Engineering section of the GSM Department shall be responsible for

a Reviewing the results of class location surveys

b Confirming the class location proposed by the Division or GSM District for each pipeline

c Recommending the action to be taken to confirm, reconfirm, or change the MAOP of each section of pipeline affected

PROCEDURAL DETAILS

8 Procedural details for class location surveys begin on Page 5 of this Standard

APPROVED BY

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PROCEDURAL DETAILS FOR CLASS LOCATION SURVEYS

9 Except as outlined in 9(f), all pipelines with an MAOP of over 40% of SMYS shall be surveyed for possible class location changes at least annually Areas where construction activity exists and where a class location change would require testing or replacement of facilities, should be under more frequent surveillance The following conditions shall guide these surveys and the required action when a class location change has occurred

a Pipeline constructed to a design factor of over 60% SMYS and up to 72% SMYS is permitted only in Class 1 location It shall be reported as "out of class location" if the building count and area description are found to correspond to a Class 2, 3, or 4 location The exception to this requirement is where a section of pipe with an MAOP of over 60% of its SMYS has been tested to at least 90% of its SMYS for a period of not less than eight hours This section can be operated at up to 72% of SMYS in a Class 2 location

b Pipeline constructed to a design factor of over 50% SMYS and up to 60% SMYS is permitted only in a Class 1 or 2 location It shall be reported as "out of class location" if the building count and area description are found to correspond to a Class 3 or 4 location The exception to this requirement is where a section of pipe with an MAOP of over 50% and up to 60% of its SMYS has been tested to at least 90% of its SMYS for a period of not less than eight hours This section can then be operated at up to 60% of SMYS in a Class 3 location

c Pipeline constructed to a design factor of over 40% SMYS and up to 50% SMYS is permitted only in a Class 1, 2, or 3 location It shall be reported as "out of class location" if the area description is found to correspond to a Class 4 location The exception to this requirement is where a section of pipe with an MAOP of over 40% and up to 50% of its SMYS has been tested to at least 90% of its SMYS for a period of not less than eight hours This section can then be operated at up to 50% of SMYS in a Class 4 location

d Pipeline constructed and tested to a design factor of 40% of SMYS or less is permissible in all locations and need not be surveyed for class location changes

e It is important that a class location change be detected at the earliest possible time so that action can be taken where necessary to bring the pipeline into compliance Paragraph 192 611 (e)(2) of 49CFR Part 192 requires that action to bring the pipeline into compliance must be completed within eighteen months of the time the change

occurs Where a new building causes a class location change, the change would occur when the gas and/or electricity is connected, or when the building is occupied, whichever occurs first

f When a pipeline in a Class 1 or Class 2 location has an MAOP which produces a hoop stress of 50% or less of SMYS and is patrolled, leak-surveyed, and otherwise maintained in accordance with the requirements for a Class 3 location, it will not be necessary to perform the annual house count survey to determine class location because the pipeline is already qualified for the higher class location However, the pipeline marking requirements for a Class 1 or Class 2 location must be met, and the line must be operated and maintained so as to retain any potential which may exist for a future increase in MAOP

10 The results of each survey shall be recorded on "Pipeline Survey Sheets" and shall include the following

a Line numbers or designations,

b Pipeline stations or locations

c Except as noted in (1) and (2) below, the location of each established building intended for human occupancy within a quarter mile wide corridor centered on the pipeline or main (220 yards each side of the pipeline)

(i) Once a Class 3 location has been established by a cluster of 46 or more buildings intended for human occupancy, it will only be necessary to plot additional new buildings if they are adjacent to the limits of the Class 3 area where they could cause an extension of the limits

(ii) It will not be necessary to plot the location of the buildings in a Class 1 or Class 2 area for a pipeline with an MAOP which produces a stress level of 50% of SMYS or less, and which is maintained in accordance with the requirements for a Class 3 location, as outlined in paragraph 9(f)

d The location of small well defined outdoor areas which are occupied by twenty or more people during normal use, which are within 100 yards of the pipeline

e Descriptive notes that indicate the character of the built-up area,

f Location of other permanent references, such as streets, roads, rivers, railroads, bridges, etc ,, that cross or are within the survey strip with respect to the built-up area and the pipeline or main

g Suggested class location designation

h Any other information pertinent to class location determination

i When determining the number of buildings intended for human occupancy in any continuous 1-mile length of pipeline, the sliding mile concept must be used The 1-mile long segment must be positioned to obtain the maximum number of buildings in the segment (NOTE Dividing the pipeline into fixed 1-mile segments and counting the buildings in each segment will frequently result in a population density count which is less than that obtained using the sliding mile Therefore, it is necessary to use the sliding mile when determining a class location)

j Once a building count establishes a higher class location, the limits of the higher class location are established using the factors outlined in paragraph 3(a)(v) Therefore, the resulting higher class location may be less than one mile in length

11 Guidelines (supplementing those included in 49CFR Part 192) for determining Class 1, 2, and 3 locations include the following

a Any structure is to be counted as a building intended for human occupancy if either a gas or an electric service is connected to it, even though the building may be uninhabited at the time of the survey This applies to barns, homestead shacks, and other structures which have visible evidence of usage as a residence

b Count as one building intended for human occupancy Each unit in a motel or hotel, each unit in an apartment house, and each space in a trailer park that is occupied or connected to gas or electric service

c Note presence of theaters, hotels, hospitals, and other buildings and places of public assembly, which would be occupied by 20 or more persons during normal use If within 100 yards of pipeline, show actual dimensions from pipeline and length of building or small, well-defined outside area that is occupied by 20 or more persons during normal use

REPORTING CHANGES

12 Where a change in class location has occurred (see Paragraph 3b) and the pipeline is not commensurate with the new class location, it shall be reported by letter to the Manager, GSM, as soon as it is detected Written reports shall include

a Detailed information supplied on Form #75-160, Report of New Construction Along Pipeline (Exhibit A)

b The physical condition of the pipeline or main to the extent that can be ascertained from available records

c A summary of the operating and maintenance history of the pipeline or main

d The extent of the area affected by the revised building count or development and physical barriers or other factors, which may limit the further expansion dl the more densely populated area

13 An annual summary of these letter reports on class location changes shall be submitted to the Gas System Technical Support Department by January 15 The summary shall indicate what action was taken to comply with General Office review recommendations

DISPOSITION AND RETENTION OF RECORDS

15 "Pipeline Survey" sheets shall be kept current at all times by Divisions and GSM Annually, by January 15, new or revised survey sheets, along with corresponding operating maps for orientation, shall be forwarded to the Gas System Technical Support Department Survey sheets shall accompany the Summary Report described in Paragraph 12 (see Paragraph 8, GS Interim Standard 463-7)

16 Requests for "Pipeline Survey" sheets for new or upgraded pipelines should be made to the Records section of the Gas System Technical Support Department

IS 460-1
Exhibit A
Effective 11/1/82

REPORT OF NEW CONSTRUCTION ALONG PIPELINE

I The following types of construction shall be reported

1 Buildings intended for human occupancy within 220 yards of either side of the pipeline

2 Buildings or small, well defined outside areas such as playgrounds, recreation areas, outdoor theaters, or other places of public assembly, any of which are to be occupied by 20 or more persons during normal use, and located within 100 yards of either side of the pipeline

II General Information

1 Line No
2 Location Town _____
Milepoint with reference to pipeline _____
3 Description of building or area _____
_____
4 Distance of building or area from pipeline _____
5 Is the building or area to be occupied by 20 or more people during normal use?
Yes _____ No _____ How many _____
6 Number of dwelling units _____
(Report each dwelling unit in a multiple unit dwelling)
7 Date of completion or occupancy _____
(Estimate if structure is still under construction)
8 Remarks _____
_____
Field Checked by _____ Date _____

III Records

1 Dwelling unit density count based on continuous sliding mile
between MP _____ and MP _____
Number Location Class
Before new construction _____
After new construction _____
2 Location class change? Yes _____ No _____ (See Note below)
3 Design information
Pipe specification _____ O D _____ W T _____
Design pressure _____ MAOP _____
4 Strength test information
Date _____ Pressure _____ Test Medium _____
5 Recorded on density map Map No _____ Date _____
6 Reviewed by _____ Date _____