

1 SCOPE

1 1 This standard establishes the minimum frequencies for the radiographic and visual inspection of welds on all gas piping systems

1 2 More frequent radiographic or visual inspections may be made at the direction of the job supervisor, if in his judgement they are necessary to ensure the quality of the welding. When determining the need for more frequent inspection of welds, consideration shall be given to the stress level at which the system is to operate, and the type and location of the facility.

2 REFERENCES

2 1 Standards of Acceptability Destructive Testing, Gas Standard D 31, Section 3

2 2 Standards of Acceptability Non-Destructive Testing, Gas Standard D 31, Section 2

*2 3 API 1104 Standard for Welding Pipelines and Related Facilities "

*3 RADIOGRAPHIC INSPECTION Applies to facilities with an MAOP, D P or F D P that correspond to 20% or more of SMYS and to gas lines with an MAOP of 200 psig or more and located on bridges

3 1 Weld quality shall be checked by non destructive examination. The following percentages of each day's field welds selected at random by the operator must be examined radiographically over their entire circumference

3 1 1 Class 1 and 2 locations radiograph at least 20 percent of the welds

3 1 2 Class 3 and 4 locations and at crossings of major or navigable rivers, radiograph 100 percent, if practicable but not less than 90 percent

3 1 3 Welds which contain repaired areas radiograph 100 percent

*Paragraph Revised

APPROVED BY	4	11/19/88	Revised Sections 2, 3, 4, 6, 5.2, Forms 75-53 & 75-307																	
LWH	PAL																			
PEL	RLH	3	3/6/86	Revised Par s 3.4, 4.4.7 & 4.6																
TET	JAE																			
JRG/PCH/C	REV	DATE	DESCRIPTION							GM	DWN.	CHKD	SUPV	APVD						

GM
SUPV
DSGN
DWN
CHKD
OK

DATE	SCALE
11/19/78	None

PIPING - DATA SHEET
WELD INSPECTION
GAS STANDARD

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO CALIFORNIA

B/M	
DWG. LIST	
SUPSDS	
SUPSD BY	
SHEET NO 1 of 4 SHEETS	
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3 1 4 For all station work, pipeline tie ins, and welds within railroad or public highway rights of way including tunnels, bridges and overhead road crossings radiograph 100 percent

3 1 5 A minimum of 20% of the welds which are not radiographed should be visually inspected as outlined in Section 4

3 2 Under the following conditions, visual examination of the welds may be substituted for radiographic examination

3 2 1 The pipe has a nominal diameter of less than 6 inches regardless of stress level, or

3 2 2 The pipeline operates at a pressure of under 40 percent of SMYS and the welds are so limited that radiographic testing is impractical

3 3 Except for a welder whose work is isolated from the principal welding activity, a sample of each welders work for each day must be radiographically inspected

3 4 Radiographic inspection must be performed by a qualified radiographer Minimum qualifications are as specified for level 2 radiographers in the American Society for Non Destructive Testing Recommended Practice SNT TC 1A

4 VISUAL INSPECTION

4 1 Visual inspection requirements apply to all welding, both arc and oxy acetylene regardless of stress level It is not necessary that every weld be visually inspected However the inspections should be conducted at reasonably frequent intervals to assure high quality workmanship The frequency should be determined by the job supervisor based on the type and location of the facility involved, and the experience of the welders However, as far as practicable, welds should be visually inspected each day, in accordance with the following schedule

a) A minimum of 20% of the welds on pipeline facilities designed to operate at 20% or more of SMYS, which are not to be radiographically inspected as outlined in Section 3

b) A minimum of 20% of the welds on pipeline facilities designed to operate at less than 20% of SMYS

4 2 Additional welds should be visually inspected if there is any reason to question the work of a welder or if for any other reason it is deemed necessary to assure the quality of welding

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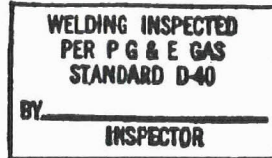
- 4 3 Where practicable, the inspection should include work by each of the welders on the job
- 4 4 Visual inspection shall verify the following
 - 4 4 1 That the welding is performed in accordance with the welding procedure
 - 4 4 2 That the joints are properly aligned prior to welding with minimum high-low
 - 4 4 3 That the burn through and inadequate penetration of the stringer bead do not exceed the limits stated in Gas Standard D 31
 - 4 4 4 That the starts on stringer bead are ground, wagon tracks are completely penetrated with hot pass, and all subsequent passes are started at different locations and are properly cleaned
 - 4 4 5 That undercutting adjacent to the cover pass shall not exceed the limits stated in Gas Standard D 31
 - 4 4 6 The weld must be free of cracks and other defects
 - 4 4 7 The dimensions of the finished weld shall comply with Drawings 284361 and 284363 of Gas Standard D 22
 - 4 4 8 The weld must present a neat workmanlike appearance
- 4 5 It is not necessary that an inspector be present during the entire time a weld is being made. A spot check made at some point during the welding process or a spot check of a finished weld qualifies as an inspection. However, each of the items outlined above should be checked with sufficient frequency to ensure that the welding standards are being met
- *4 6 Visual inspection must be made by qualified personnel. Gas Mechanics or a higher T&D classification, qualified welding inspectors, radiographer, or exempt foreman classification shall be used to make visual inspections. Inspection must be made by an experienced welder or former welder and it must be recorded that the person has read the Weld Inspection Guide in the Gas Foreman's Manual (Section 2). The supervisor designating the person to inspect welds has the responsibility to determine that the person is qualified

*Paragraph Revised

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5. RECORDS

5.1 A record of all visual inspection of facilities to operate at less than 20% of SMYS must be kept by stamping the completed Work Order, service record, GM, or other record document with this stamp:



*5.2 A record of all radiographic inspections outlined in Section 3 shall be made by completing forms 75-33 and 75-307 of this standard. All records shall be retained for the life of the facility.

*Paragraph Revised

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