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 insure 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.

3 RADIOGRAPHIC INSPECTION (Applies only to facilities with an MAOP D P or F D P that correspond to 20% or more of SYMS)

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

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

1	8/78	CHAN [illegible] NO FROM 776 18	[illegible]				
C	[illegible]	[illegible]	[illegible]	2	7/79	REVISE HEADING OF PARA 3	[illegible]
	D	D			D	D	

APPROVED [redacted] LH [illegible] JRG [illegible]

BY	
DSGN	
DR	
CH.	
O.K.	
DATE 11-19-76	SCALE

PIPING - DATA SHEET
WELD INSPECTION
GAS STANDARD
PACIFIC GAS AND ELECTRIC COMPANY

SUPERSEDES
SUPERSEDED BY
SHEET NO 1 OF 3 SHEETS
W 086574 2

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 Standard SNT-TC-1A of the Society for Non-Destructive Testing

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 the welding

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 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 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 Drawing 084022 (Page 9 of 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 insure that the welding standards are being met

4 6 Visual inspection must be made by qualified people only This may be the foreman on a small job a radiographer or some other person qualified to determine that a weld is acceptable The supervisor designating the person to inspect the welding for a job has the responsibility to determine that the person is qualified

5 RECORDS

5 1 A record of all visual inspection on 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

WELDING INSPECTED
PER P G & E GAS
STANDARD D-40
BY_____
INSPECTOR

(The foreman can also include this information in his log)

5 2 Where the system is to operate at 20% or more of SMYS the record shall be made by filling out form 75-53 and form 75-307 (Gas Standard D-40, Pages 4 and 5) All records shall be retained for the life of the facility

NONDESTRUCTIVE TESTING OF WELDS ON FACILITIES DESIGNED TO OPERATE AT 20% OR MORE OF S M Y S

JOB SUMMARY

DATE _____

GM/WO NO _____ DIVISION _____

JOB DESCRIPTION _____

_____

_____

LOCATION - (CITY OR TOWN) _____

*CLASS LOCATION _____ (PERCENT OF WELDS REQUIRING INSPECTION) _____

DESIGN PRESSURE _____

PIPE SIZE O.D	WALL THICKNESS	PIPE SPECIFICATION
_____	_____	_____
_____	_____	_____

LOCATION OF PIPELINE IN RELATION TO PIPELINE MILE POSTS, ENGINEERING STATIONS OR BY GEOGRAPHIC FEATURES

FROM _____

TO _____

TOTAL NO OF FIELD GIRTH WELDS IN PIPELINE _____

TOTAL NO OF FIELD GIRTH WELDS NONDESTRUCTIVELY TESTED _____

TOTAL NO OF FIELD GIRTH WELDS REJECTED _____

DISPOSITION OF THE REJECTS-NO OF CUT-OUTS _____

NO OF REPAIRS _____

*PERCENT OF FIELD GIRTH WELDS NONDESTRUCTIVELY TESTED _____ %

RADIOGRAPHIC INSPECTOR _____

_____

DISTRIBUTION

DIV GAS SUPT
DIST GAS SUPT
PLO AREA SUPT
GC GAS - S F
JOB FILE

CONSTRUCTION SUPERVISOR OR GENERAL FOREMAN _____

*USE SEPARATE SHEET FOR EACH CHANGE OF CLASS LOCATION

August 1978

75 307
7/79

Inspection Report of Welds on Piping Systems Intended to Operate at 20% or More of Specified Minimum Yield Strength

GM/WO No _____ Division _____ Date _____

Job Description _____

Welders _____

Inspected by Visual _____ Radiographic _____

Standard of acceptability of welds on pipelines covered in this report shall be in accordance with Gas Standard D 31 Note all defects as they occur in the areas set forth below

Weld No or Location	Type	Pipe Dia	Wall Thick	Sec A 12 4 0' clock	Sec B 4 8 0 clock	Sec C 8 12 0 clock	Type of Inspection Visual	Type of Inspection Radio	Passed	Failed	Remarks

Weld Defects Abb

- Crack (CR)
- Burn Through (BT)
- Gas Pockets (GP)
- Lack of Fusion (LF)
- Lack of Penetration (LP)
- Slag Inclusion (SI)
- Wagon Tracks (WT)
- Under Cut (UC)

Nomenclature (for Type Weld)

- B Butt Weld
- F Fillet Weld
- S Sleeve
- (SF Sleeve Fillet Weld)

Distribution

1 Div Gas Supt (or P L O Area Supt)
2 G C Office S F for Permanent Filing
3 Foreman s Copy of the W O or GM