Page 1

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

- 2.1Standards of Acceptability - Destructive Testing, Gas Standard D-31. Section 3.
- 2.2 Standards of Acceptability - Non-Destructive Testing, Gas Standard D-31. Section 2.
- RADIOGRAPHIC INSPECTION **Applies **Hy** to facilities with an MAOP, D.P. or F.D.P. that correspond to 20% or more of **H\$** \$\infty\$ \text{N} \text{V} \simes \text{N} \text{N} \text{D} 3.
 - 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 outline in Section 4.

GAS LINES LOCATED ON BRIDGES AND OPERATING AT A PRESSURE EXCEEDING 200 PSIG.



APPROVED BY 3 3/6/86	Rev'd Par's 3.4,4.4.7,&4.6;Chg'd All Pgs.Rev.3	350	4.1			
I WH PAI 2 7/79	Revise Heading on Paragraph 3		RT	A/PALI		
	Changed Form No. From 77G-18			A/PAL		
	Issue for Use		LW	H/PAL		
JRG/PCH/CJREV. DATE	DESCRIPTION	GM	DWN. CHKD. SUPV	APVD.		
GM						
SUPV.	PIPING - DATA SHEET		DWG. LIST			
D\$GN.	WELD INSPECTION		SUPSDS SUPSD BY SHEET NO.10f3 SHEETS			
DWN.	GAS STANDARD					
CHKD.						
O.K.	DIGING OLD THE FITTING COLUMN		DRAWING NUMBER	REY.		
DATE SCALE	PACIFIC GAS AND ELECTRIC COMPANY		086574	3		
11/19/78	SAN FRANCISCO, CALIFORNIA					
61-4344 (REV. 1-76) PRINTED ON DIEPO NO. 1080 CLEARPRINT 11-80						

Material Redacted GTR0042517

Page 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 the American Society for Non-Destructive Testing Recommended Practice SNT-TC-1A.

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.
- 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.
- * Paragraph Revised

PG&E CO.

SHEET 2 OF 3 SHEETS 086574 3

Material Redacted GTR0042518

Page 3

- 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.
- 7 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. Gas Mechanics or a higher T&D classification, radiographer, or exempt foreman classification shall be used to make visual inspections. The inspector shall be 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.

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:

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 B-40, Pages 4 and 5). All records shall be retained for the life of the facility.

* Paragraph Revised

ARECORD OF ALL RADIOGRAPHIC INSPECTIONS DUTLINED IN SECTION 3 SHALL BE MADE BY COMPLETING FORMS 75-33 AND 75-307 OF THIS STANDARD.

PG&E CO.
SHEET 3 OF 3 SHEETS

ORAWING NUMBER
086574

3

Material Redacted GTR0042519

NONDESTRUCTIVE TESTING OF WELDS ON FACILITIES DESIGNED TO OPERATE AT 20%

OR MORE OF S.M.Y.S. $A \bowtie D$

JOB SUMMARY PRESSURE EXCEEDING ZOOPSIG

DATE							
GM/WO NO。			DIVISION				
JOB DESCRIPTION	·						
LOCATION - (CITY OR							
CLASS LOCATION		CENT OF WELDS QUIRING INSPECTION)					
DESIGN PRESSURE _		REQU	REQUIRING INSPECTION)				
PIPE SIZE			PIPE SPECI	FICATION			
							
OCATION OF PIPELIN STATIONS OR BY GEOG FROM:	RAPHIC FEATU		,	ERING			
·0:				<u> </u>			
OTAL NO. OF FIELD	GIRTH WELDS	IN PIPELINE:		-			
OTAL NO. OF FIELD	GIRTH WELDS	NONDESTRUCT VEL	Y TESTED:				
TOTAL NO. OF FIELD	GIRTH WELDS	REJECTED:					
ISPOSITION OF THE	REJECTS-NO.	OF CUT-OUTS:					
	NO.	OF REPAIRS:					
PERCENT OF FIELD GI				01			
	RAD	IOGRAPHIC INSPE	CTOR:				
DIV. G Plo Are	AS SUPT. A SUPT. - S.F.	. CONSTRUCTION SUPERVISOR OR GENERAL FOREMA	.N				
ISE SEPARATE SHEET	FOR EACH CHA	NGE OF CLASS LO	CATION	March, 1986			

75-307 3/86

Inspection Report of Welds on Piping Systems Intended to

Operate at 20% or More of Specified Minimum Yteld Strength

PHD PIPING SYSTEMS LOCATED ON BRIDGES AND

OPERATING OF A STREET OF STREET 200 PSIG.

Welders										
Inspected by: VisualRadiographic										
Standar	d of ac	ceptabi	lity of	welds or	n pipelin	es covere	d in this repo	rt shall	be in acc	ordance wit
Gas Standard D-31. Note all defects as they occur in the areas set forth below:										
		Pipe		Sec A	Sec B	Sec C	Type of			
eld No. or Location	Type	Pipe Dia.	Wall Thick.	12 - 4 0' clock		8 - 12 0' clock	Inspection Visual Radio	Passed	Failed	Remarks
			. }		ł					
	1				-		 		 	***
			-	:						
				<u> </u>	ļ				ļ	
	}									
	1						 		 	
								-		
					ļ					

Gas Pockets (GP)

Wagon Tracks (WT)

Under Cut (UC) Lack of Fusion (LF)

Distribution:

- 1. Regional Gas Operations Managers
- Regard Sup operations.
 Div. Gas Supt. (or P.L.O. Area Supt.)
 G.C. Office, S.F., for Permanent Filing
 Foreman's Copy of the W.O. or GM

F - Fillet Weld

n in the resident states in the state of the state of

S - Sleeve

(SF - Sleeve Fillet Weld)

D-40 PAGE 5