1.0 GENERAL

1.1 A welder qualified under this standard may perform arc welding on all API 5L, 5LX, ASTM A53 or A-106 grades of pipe up to and including X60. This would include all natural gas lines designed to operate at stress levels of 20% or more of the specified minimum yield strength to comply with CPUC General Order 112-~~C~~. LATEST EDITION

1.2 The standard definitions contained in API Standard 1104, latest edition referenced in Appendix "A" of General Order 112-~~C~~, shall apply to this standard. LATEST EDITION

2.0 QUALIFICATION TEST

2.1 Before any production welding is performed on pipelines or components designed to operate at over 20% of SMYS, welders shall be qualified under this section. The weld shall meet the visual inspection requirements of Par. 4, Standard D-40 and shall also be qualified by either the radiographic testing requirements of Section 2.0, Standard D-31, (for butt welds only), or the destructive testing requirements of Section 3.0 and/or 4.0, Standard D-31.

2.1.1 The test shall be made on steel pipe - 12-3/4" O.D. x ~~0.250"~~ 0.375 or greater wall, THICKNESS any grade.

2.1.1.1 Butt Weld - The welder shall make a butt weld in the HORIZONTAL fixed position ~~with the axis of the pipe either in the horizontal plane~~ or inclined from the horizontal plane at an angle not exceeding 45°(See Page 4).

No. As inclined, the inclined position would not have to be fixed.

2.1.1.2 Branch Connection - The welder shall lay out, cut, fit, and weld a full size branch on pipe connection. The weld shall be made with the run pipe axis in the horizontal position and the branch pipe axis extending vertically downward from the run (see Page 5).

2.2 Scope of Qualification

2.2.1 A welder who has successfully completed the qualification tests under Section 2.1.1 shall be qualified to weld on natural gas pipelines designed to operate at any stress level, in all positions, on all wall thicknesses, joint designs, including fillet welds, and fittings on all pipe diameters and all grades of pipe if the essential variables in Section 2.3 remain unchanged. Qualification under Section 2.1.1 by destructive testing is required before

CHG.	DATE	DESCRIPTION	APPRD.	CHG.	DATE	DESCRIPTION	APPRD.
1	10-17-77	ADDED FORM 75-292 & PAR. 2.6	[illegible]	2	6-79	REVISED PARA 2.6	[illegible]
0	1-20-77	Issue for use	[illegible]				

APPROVED [illegible signatures]

BY	PIPING - DATA SHEET ARC WELDER QUALIFICATION FOR OVER 20% OF SMYS GAS STANDARD PACIFIC GAS AND ELECTRIC COMPANY	SUPERSEDES
DSGN.		SUPERSEDED BY
DR.		SHEET No. 1 OF 3 SHEETS
CH.		DRAWING NUMBER 086577 — CHANGE 2
O.K.		
DATE 11-18-76 / SCALE		

welding compressor station piping or components.

2.3 If any of the following essential variables are changed, the welder must be requalified:

2.3.1 A change from one welding process to any other welding process or combination of welding processes.

2.3.2 A change in the direction of welding from vertical up to vertical down or vice versa. (Direction of welding shall be only as allowed by Standard D-22. Refer to Pages 9 and 10, Drawings 084022 and 086462).

2.3.3 A change in filler metal from one classification group to another classification group as shown in table below:

FILLER METAL CLASSIFICATION GROUPS

GROUP	AWS SPEC.	ELECTRODE
I	A5.1	EXX 10
	A5.5	EXX 11
II	A5.5	EXX 16
		EXX 18

2.4 Requalification of Arc Welders

2.4.1 Welders shall be requalified at intervals not exceeding six (6) months. Requalification may consist of successful passing of a radiographic examination of a production butt weld, or by repeating the butt weld test in Section 2.1. If time exceeds 6 months, entire qualification must be repeated.

2.4.2 A requalification test, by destructive methods and in accordance with Section 2.1.1.1, may also be required if there is reason to question the welder's ability.

2.4.3 Annually, all welders who work on compressor station piping must pass a butt weld test, by destructive methods, in accordance with 2.1.1.1.

2.5 Qualification and requalification tests shall be performed under the supervision of a qualified welding inspector

This inspector shall not leave the immediate area while the testing is being performed. For the purposes of this Standard, a qualified welding inspector is a designated employee that has the experience and knowledge to judge the quality of welds. The supervisor designating the person to inspect the welding for a job has the responsibility to determine that the person is qualified. (See Standard D-40).

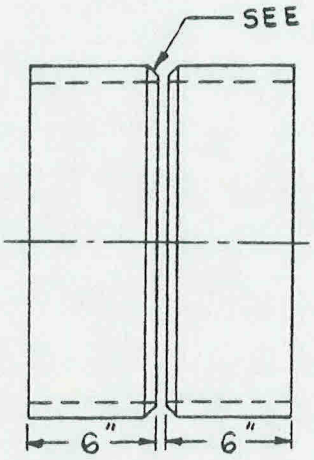
2.6 Records

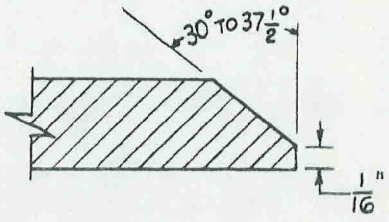
2.6.1 Records for all welders who have been qualified under this Standard shall be retained as outlined below.

2.6.2 All Employee Qualification and Requalification records must be retained for a minimum duration of five years.

2.6.3 All Employee Qualification and Requalification records must be retained through temporary lapses in a welder's qualification.

2.6.4 The Record shall be made by filling out **Form** 75-292 (Gas Standard D-30.2, Page 6).





DETAIL OF BEVEL

NOTES:

1. SPOOLS CAN BE USED FOR WELDER QUALIFICATION FOR BOTH CELLULOSE COATED (GAS STD. D-22, PG. 9) AND LOW HYDROGEN ELECTRODES (GAS STD. D-22, PG. 10).

OPERATING INSTRUCTIONS

(TWO SPOOLS ARE REQUIRED FOR EACH TEST)

SPECIFY:

SPOOL, TEST, 12-3/4" O.D., 0.375" WALL, GR. B,
6" LENGTH W/30-37.5 DEG. BEVEL ONE END.
GAS STD. D-30.2, PG&E MFG.

CODE 02-2583

2. REFER TO GAS STD. D-31, PAGE 13, FOR TYPE, NUMBER AND LOCATION OF BUTT WELD TEST SPECIMENS,

CHG.	DATE	DESCRIPTION	GM	BY	CH.	APP'D.
5	11-30-77	CHANGED STD. PAGE NO. FROM PAGE 3				
4	12-21-76	REVISED TITLE, TRANSFERED FROM D-31				
3	6-17-71	CHANGED SPOOL LENGTH FROM 9" TO 6"				
7	4-4-83	REVISED NOTES, ADDED ORDERING INSTRUCTIONS				
6	5-27-80	ADDED NOTES 1 AND 2				

APPROVED BY

SUPV. BY DEPT. OF G.O.
DSGN.
DR. [redacted]
CH.
O.K.

DATE: 1-4-65
SCALE: NONE

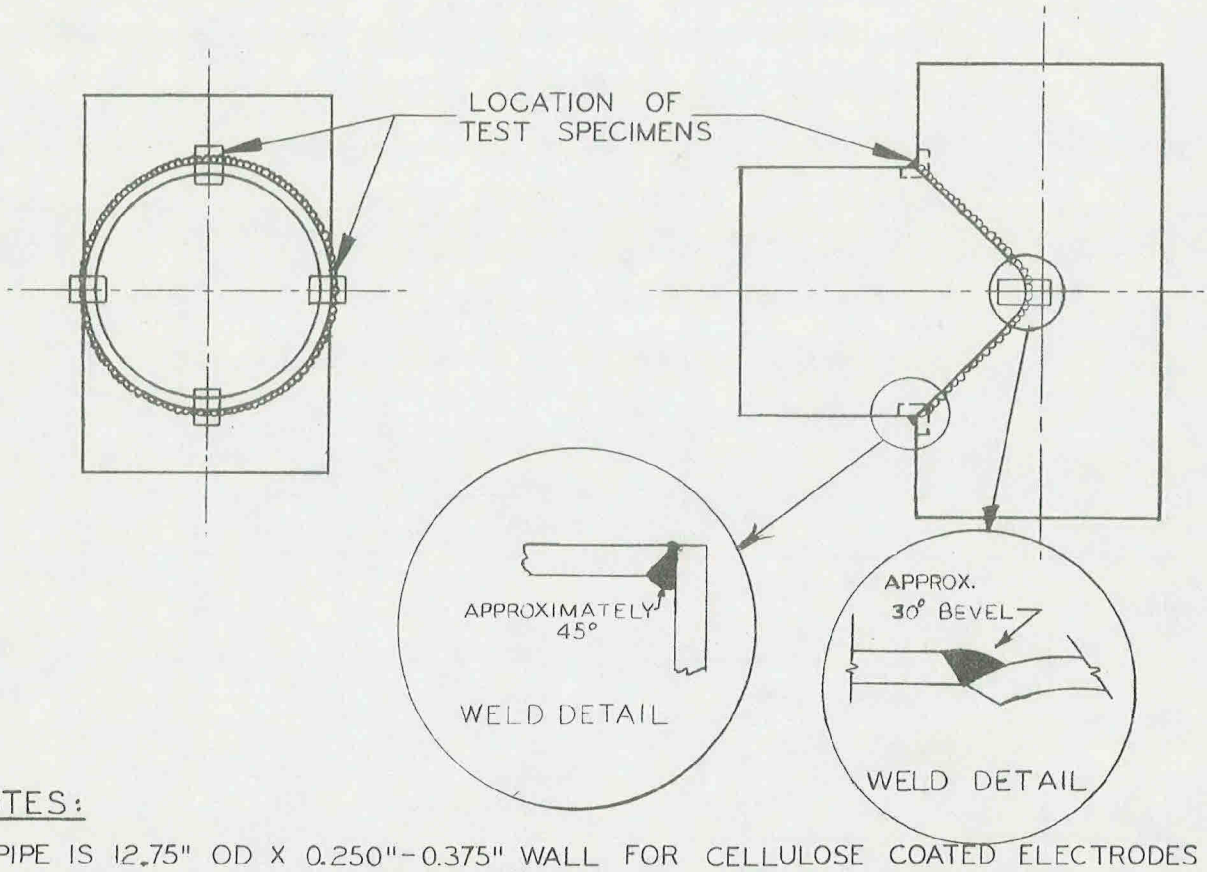
PIPING-DATA SHEET

BUTT WELD TEST SPOOLS FOR WELDERS WORKING ON PIPE LINES OPERATING AT HOOP STRESSES OF MORE THAN 20% OF THE SPECIFIED MINIMUM YIELD

GAS STANDARD

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

DRAWING LIST
SUPERSEDES 083466 SH 5
SUPERSEDED BY
SHEET NO. | SHEETS
DRAWING NUMBER: 084023
CHANGE: 7



NOTES:

1. PIPE IS 12.75" OD X 0.250"-0.375" WALL FOR CELLULOSE COATED ELECTRODES AND 0.375" WALL OR GREATER FOR LOW HYDROGEN ELECTRODES. ANY GRADE LISTED IN PARAGRAPH 1.1 MAY BE USED.
2. WELDER MUST LAYOUT, CUT, FIT AND WELD BRANCH FITTING CONNECTION. A FULL HOLE IS TO BE CUT IN THE RUN. FIXED ✓
3. THE WELD IS TO BE MADE WITH THE RUN PIPE AXIS IN THE HORIZONTAL POSITION, AND THE BRANCH PIPE AXIS EXTENDING VERTICALLY DOWNWARD FROM THE RUN.
4. WELD MUST MEET VISUAL TESTING REQUIREMENTS OF SECTION 6.3.
5. FOUR NICK BREAK SPECIMENS ARE REQUIRED. TEST NICK BREAK SPECIMENS FROM LOCATIONS INDICATED. SPECIMENS SHALL MEET REQUIREMENTS OF STANDARD D-31. PREPARE AND BREAK SPECIMENS AS SPECIFIED ON DWG. 084024 (STD. D-31, PAGE 14).

TEST WELD FOR ARC WELDERS QUALIFICATION FOR FACILITIES OPERATING AT OVER 20% OF SMYS.

APPROVED BY	CHG.	DATE	DESCRIPTION	GM	BY	CH.	APP'D.
	3	5-27-80	REVISED NOTE 1				
	2	10-19-79	ADDED WELD DETAILS		JH	MDA	
	1	11-30-77	Changed Std. Page No. from Page 4				
	0	1-20-77	SUPERSEDES 084029 & 085749				

GM		B/M	
SUPV.		DRAWING LIST	
DSGN.		SUPERSEDES 084029 & 085749	
DR.	[redacted]	SUPERSEDED BY	
CH.		SHEET NO.	SHEETS
O. K.		086406	CHANGE 3
DATE 6-25-75	SCALE —		

PIPING - DATA SHEET
BRANCH WELD TEST
GAS STANDARD

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

ARC WELDER QUALIFICATION TEST FOR PIPING SYSTEMS OPERATING AT HOOP STRESSES OF 20% OR MORE OF SPECIFIED MINIMUM YIELD STRENGTH

☐ Passed ☐ Failed Date Last Tested: _____ Date: _____

Welder: _____ S.S. No.: _____

Pipe Dia. _____ Pipe Spec. _____ Grade _____ Wall Thickness _____

☐ EXX10 ☐ Micro Wire ☐ Butt Tester: _____ (P.G.&E.)

☐ EXX18 ☐ Other _____ ☐ Branch Weld Position: _____

ELECTRODE MATERIAL: ELECTRICAL: WELDING:

Bead	Mfg. & AWS Class	Dia.	Polarity	Amps	Volts	Direction
1st Bead						
2nd Bead						
Other Beads						

TENSILE TESTS:

Specimen	Width	Thickness	Area-Sq. in.	Load-Lb.	Stress-Psi	Remarks
1						
2						
3						
4						

FACE BEND OR SIDE BEND:

Specimen	Location	No. Cracks	Max. Dimension	Location	Remarks
1					
2					

ROOT BEND OR SIDE BEND:

1					
2					

NICK BREAK:

Specimen		Gas Pockets			Slag Inclusion				
No.	Location	No.	Max. Size	Between	No.	Length	Between	Fusion	Remarks
1									
2									
3									
4									

Contractor: _____ Project: _____