

CHART II
WELDING REPAIR SELECTIONS CHART FOR MAINS WITH MAXIMUM ALLOWABLE OPERATING PRESSURE
GREATER THAN 100 PSIG BUT LESS THAN 20% OF SPECIFIED MINIMUM YIELD STRENGTH AND 500 PSIG

TYPE OF DEFECT	EXTENT OF DEFECT	PERMISSIBLE METHODS OF REPAIR	LIMITATIONS OF METHODS
1. MECHANICAL DAMAGE: HOLES, SCRATCHES, GROOVES, CRACKS AND DENTS.	A. DEPT. LESS THAN 5% DISTORTION 1/8" FOR 6% D.E.L. AND SMALLER	NO REPAIR REQUIRED	NO NOTICES, SCRATCHES, GROOVES OR DENTS TO BE REPAIRED. NO WELDS AFFECTED.
	B. DEPT. MORE THAN 5% DISTORTION 1/8" FOR 6% D.E.L. AND SMALLER	1. SLEEVEING 2. REPAIR AND REWELDING OF PIPE	DENT MUST NOT PREVENT PROPER FIT UP. ENTIRE SECTION AFFECTED MUST BE REMOVED.
	C. NOTCH, SCRATCH, GROOVE, GROOVE DEPT. EXCEEDS 1/8" IN PIPE WALL THICKNESS	1. GRINDING	PIPE WALL NOT TO BE REDUCED TO LESS THAN 50% OF NOMINAL PIPE WALL THICKNESS. DENT OR DISTORTION LESS THAN 5% OF D.O.
	D. NOTCH, SCRATCH, GROOVE, GROOVE DEPT. BETWEEN 1/8" AND 50% OF PIPE WALL THICKNESS	1. GRINDING AND WELDING 2. PATCHING	DENT OR DISTORTION LESS THAN 5% OF D.O. FOR 6% D.E.L. AND SMALLER. REPAIR NOT TO EXCEED 1/4" PIPE CIRCUMFERENCE NOR 4 SQUARE INCHES. NOT MORE THAN ONE REPAIR PER 5 PIPE DIAMETERS OF LENGTH. DENT OR DISTORTION LESS THAN 5% OF D.O. FOR 6% D.E.L. AND SMALLER. PATCH NOT TO EXCEED 1/4" PIPE CIRCUMFERENCE. PATCHES NOT TO BE OVER 10" IN LENGTH. ON PIPE OVER 6" O.D. A MINIMUM OF 3" CLEARANCE BETWEEN PATCHES.
	E. NOTCH, SCRATCH, GROOVE, GROOVE DEPT. MORE THAN 50% OF PIPE WALL THICKNESS	1. PATCHING 2. SLEEVEING	PATCH NOT TO EXCEED 1/4" PIPE CIRCUMFERENCE. ON PIPE OVER 6" O.D. LENGTH NOT OVER 10" IN PIPE DIAMETERS. A MINIMUM OF 3" CLEARANCE BETWEEN PATCHES. DENT MUST NOT PREVENT PROPER FIT UP.
2. CORROSION DAMAGE	A. DEPTH LESS THAN 20% OF PIPE WALL THICKNESS	NO REPAIR REQUIRED	ENTIRE SECTION AFFECTED MUST BE REMOVED.
	B. DEPTH BETWEEN 20% AND 50% OF PIPE WALL THICKNESS	1. GRINDING AND WELDING 2. PATCHING	REPAIR NOT TO EXCEED 1/4" PIPE CIRCUMFERENCE NOR 4 SQUARE INCHES. NOT MORE THAN ONE REPAIR PER 5 PIPE DIAMETERS OF LENGTH. SAME AS I.E.L.
	C. DEPT. OVER 50% OF PIPE WALL THICKNESS BUT LESS THAN 80% - NO LEAKAGE	1. PATCHING 2. SLEEVEING	SAME AS I.E.L. NO LIMITATIONS.
	D. DEPT. 80% OF PIPE WALL THICKNESS OR MORE - LEAKING LEAKING CORROSION FITS	1. GRINDING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	2" MAXIMUM SIZE 2" MAXIMUM SIZE ENTIRE SECTION AFFECTED MUST BE REMOVED.
	E. DEPT. OVER 80% OF PIPE WALL THICKNESS - NO LEAKAGE	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	2" MAXIMUM SIZE 2" MAXIMUM SIZE ENTIRE SECTION AFFECTED MUST BE REMOVED.
3. LEAKS IN WELDS	A. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.
	B. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.
4. NON-LEAKING CRACKS OR DEFECTS IN WELDS	A. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.
	B. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.
5. LEAKS IN ONLY ONE OF THE MAINS IN A PLUMB	A. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.
	B. ALL	1. PATCHING 2. SLEEVEING 3. REPAIR AND WELDING 4. REPLACE SECTION OF PIPE	SAME AS I.E.L. EXISTING FACILITIES ONLY EXISTING FACILITIES ONLY 2" MAXIMUM SIZE EXISTING FACILITIES ONLY ENTIRE SECTION AFFECTED MUST BE REMOVED. IF NOT LEASIBLE TO TAKE MAIN OUT OF SERVICE, INSTALL SLEEVE.

SEE PARAGRAPH 4 OF THIS SPECIFICATION FOR THE
 TYPE OF WELDING TO BE USED IN REPAIRS.
 ALL WELDS SHALL BE MADE BY THE
 WELDER QUALIFIED TO WELD THE
 MATERIAL AND THICKNESS OF THE
 PIPE TO BE WELDED.
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 WELDER QUALIFIED TO WELD THE
 MATERIAL AND THICKNESS OF THE
 PIPE TO BE WELDED.

APPROVED BY	DATE	DESCRIPTION	CHKD	APVD
DESIGNED BY	DATE	DESCRIPTION	CHKD	APVD
DRAWN BY	DATE	DESCRIPTION	CHKD	APVD
CHECKED BY	DATE	DESCRIPTION	CHKD	APVD
DATE	SCALE	SUPERSEDES 08495 PG 5		
SUPPLY GAS SPEC. DSGM DWN CHKD OK		PIPING-DATA SHEET REPAIR REQUIREMENTS FOR DAMAGED OR LEAKING MAINS GAS STANDARD PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA		
SUPERSEDED BY SHEET NO. 2 OF 5 SHEETS DRAWING NUMBER 283906 REV 4		MICROFILM		