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OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

April 4, 1980

IE Bulletin No. 79-03A

LONGITUDINAL WELD DEFECTS IN ASME SA-312, TYPE 304 STAINLESS STEEL PIPE

Description of Circumstances:

IE Bulletin No. 79-03 required the licensee to determine if ASME SA-312, Type 304 pipe manufactured by Youngstown Welding and Engineering Company is in use or planned for use in safety-related systems. Since the issuance of IE Bulletin 79-03 on March 12, 1979, subsequent findings indicate additional information and clarification is needed to resolve the SA-312 issue.

It has been determined that conventional ultrasonic testing (UT) and radiographic testing (RT) techniques (as required by ASME Section III) are not adequate to detect centerline lack of weld penetration (CLP). Conventional radiography and UT examinations may detect the presence of CLP under special conditions, but neither can be considered reliable enough to detect CLP even when significant percentages exist.

Based upon the above and previous findings during inspections at Youngstown it has been determined that the Youngstown Welding and Engineering Company did comply with the ASME Code requirements, but that the Code NDE requirements are deficient. Consequently any manufacturers' SA-312, Type 300 Series, austenitic stainless steel fusion welds may contain undetected CLP. This problem is generic to all welded SA-312/A-312 material and is not restricted to material manufactured by the Youngstown Welding and Engineering Company.

The NRC has verified that the CLP condition also exists in the SA-312 and/or A-312 fusion welded pipe manufactured by ARMCO's Advanced Materials Division, the SWEPCO Tube Corporation and Crucible's Trent Tube Division. These companies are known to have supplied SA-312 and/or A-312 material for nuclear applications and are now included within the scope of this Bulletin.

Several licensee's responses to the IE Bulletin 79-03 were inadequate. The responses were inadequate because they were based on the purchase order NDE requirements rather than the information requested in the Bulletin. An actual example of an inadequate response was as follows: Radiography of a circumferential weld seam revealed CLP in the longitudinal seam of a section of SWEPCO fusion welded pipe. The licensee did not believe the case was reportable if the original NDE requirements for the SWEPCO pipe did not require volumetric examination.

This CLP problem is considered by the NRC to be a significant deficiency which requires extensive evaluation and could result in repair or replacement of pipe and/or fittings.

The information requested in this revised Bulletin is to be provided without regard to the purchase order NDE requirements or any subsequent NDE performed for or by the licensee. The information requests in this Bulletin supersede the requests for information in the IE Bulletin 79-03.

The NRC staff position on this issue and any other case where defects or deficiencies are discovered in safety-related components is as follows: Regardless of the circumstances under which potential deficiencies or potential defects in safety-related components are discovered the matter shall be identified, evaluated, dispositioned documented and reported in strict accordance with the appropriate Federal Regulations. Although the ASME Code rules and requirements may be used when appropriate to evaluate defects or deficiencies and to justify and accept the existence of a defect or deficiencies, the Code can not be used as justification for not reporting the defect, deficiency and circumstances to the NRC when that defect or deficiency has been identified by the NRC as a potential generic problem. When the licensee, his agent or vendor discovers a defect or deficiency that may be a generic problem or a significant lone deficiency a conservative position shall be adopted regarding the reporting of the situation to the NRC.

For those power reactor facilities that have the subject pipe installed the action identified in this Bulletin is limited to identifying the specific applications and providing information related to the structural integrity of the piping components. Additional guidance related to NDE's and/or precautionary or corrective actions will be provided in a later Bulletin revision if necessary.

Revised action to be taken by Licensees and Permit Holders:

For all power reactor facilities with an operating license or a construction permit:

1. Determine whether SA-312 or A-312, Type 300 Series fusion welded pipe is in use or planned for use in safety-related systems subject to design stresses greater than 85 percent of the Code allowable stresses. For the purpose of this check the actual wall thickness of the piping products will be considered adequate if the code requirements for pressure design of the piping products are satisfied using 85 percent of the maximum allowable stress at the design temperature.
2. For those piping components using greater than 85 percent of the allowable stresses identify the application of the piping including the system, pipe location, pipe size, pipe configuration (elbow, tee), design pressure/ temperature requirements and the manufacturer.
3. For those facilities under construction and where access permits, the ends of all safety-related SA-312 and A-312 fusion welds should be etched to determine if CLP exists. Identify the manufacturer and the degree of CLP as a percentage of the pipe wall thickness.

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4. For facilities with an operating license, a report of the above information shall be submitted within 120 days of receipt of this Bulletin.
5. For facilities with a construction permit, a report of the above information shall be submitted within 120 days of receipt of this Bulletin.

Reports should be submitted to the Director of the appropriate NRC Regional Office and a copy should be forwarded to the NRC Office of Inspection and Enforcement, Division of Reactor Construction Inspection, Washington, D.C., 20555.

Approved by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

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Bulletin No.	Subject	Date Issued	Issued To
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79-01B	Environmental Qualification of Class IE Equipment	2/29/80	All power reactor facilities with an OL
80-04	Analysis of a PWR Main Steam Line Break With Continued Feedwater Addition	2/8/80	All PWR reactor facilities holding OLs and to those nearing licensing
80-03	Loss of Charcoal From Standard Type II, 2 Inch, Tray Adsorber Cells	2/6/80	All holders of Power Reactor OLs and CPs
80-02	Inadequate Quality Assurance for Nuclear	1/21/80	All BWR licenses with a CP or OL
80-01	Operability of ADS Valve Pneumatic Supply	1/11/80	All BWR power reactor facilities with and OL
79-01B	Environmental Qualification of Class IE Equipment	1/14/80	All power reactor facilities with an OL
79-28	Possible Malfunction of Namco Model EA 180 Limit Switches at Elevated Temperatures	12/7/79	All power reactor facilities with an OL or a CP
79-27	Loss Of Non-Class-1-E Instrumentation and Control Power System Bus During Operation	11/30/79	All power reactor facilities holding OLs and to those nearing licensing
79-26	Boron Loss From BWR Control Blades	11/20/79	All BWR power reactor facilities with an OL