

AMBIGUOUS INTENT OF NEW RULEMAKING LANGUAGE IN 10CFR50.55a(b)(2)(xxvi) CONDITION ON PRESSURE TESTING CLASS 1, 2, & 3 MECHANICAL JOINTS

BACKGROUND:

The final rule effective June 3rd states, “Pressure testing Class 1, 2, and 3 mechanical joints. When using the 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, licensees shall pressure test in accordance with IWA–5211(a) mechanical joints in Class 1, 2, and 3 piping and components greater than NPS–1 which are disassembled and reassembled during the performance of a Section XI repair/replacement activity requiring documentation on a Form NIS–2.”

The new condition wording clarifies how the required pressure test shall be performed by removing reference to the 1998 edition of Section XI, however, it also introduced confusion as to when these pressure tests are intended to be required with the removal of the reference to IWA-4540. As worded, the Condition prevents Owners from applying the exemptions provided by IWA-4540(b) when a mechanical joint is disassembled and assembled as part of a Repair/Replacement activity (RRA).

As a result, licensees are emergently revising and adding VT-2 pressure tests to work packages that involve RRA that previously did not require pressure testing.

Examples where confusion could be expected to arise include but are not limited to.

1. Replacing a single bolt/nut in a mechanical joint may not necessitate joint disassembly but is a repair/replacement activity (RRA) requiring the completion of a Form NIS-2.
2. Replacing all bolting/nuts in a mechanical joint can be accomplished without actually disassembling the joint and is a RRA requiring the completion of a Form NIS-2.
3. Disassembling and reassembling a mechanical joint on a valve body in order to replace a valve disc on an isolation valve, where the disc is considered to be pressure retaining, is a RRA requiring the completion of a Form NIS-2. However, the reassembly of the mechanical joint may or may not involve the replacement of joint bolting/nuts. Performing a VT-2 of the scenario where only a disc is being replaced serves no useful purpose since the disc is not visually accessible to see upon reassembly. It is also exempted from pressure testing in IWA-4540(b)(9).

There are several other exemptions from pressure testing of RRA contained within ASME Section XI IWA-4540 that would require a Form NIS-2 and would seem to now need pressure testing to be performed based on the need to disassemble and reassemble a mechanical joint. Some of these include:

1. IWA-4540(b)(1) exempts pressure testing of cladding repairs, even though they are recorded on Form NIS-2.
2. IWA-4540(b)(4) exempts pressure testing of minor flange repairs, even though they are recorded on Form NIS-2.

Was it the USNRC's intent to prohibit the exemptions from pressure testing of RRA contained in IWA-4540(b)?

Was it the USNRC's intent to replace the provision of IWA-4540(c), which describe when to perform pressure testing of mechanical joints?

It is understood that the USNRC does not officially endorse ASME Interpretations, and that Licensees are cautioned in using ASME Interpretations. However, there are over a dozen formally published ASME Section XI interpretations that have been issued dating back to as early as 1983 that now stand in direct contradiction to the revised condition.

These interpretations are attached only as information in Attachment 1.

SUMMARY:

- It is not obvious what the Rulemaking condition was to accomplish.
- As written, it introduced confusion rather than clarification.
- Inconsistent industry interpretations of the rule will result in disparate implementation and enforcement of the rule and potentially lead to unnecessary and burdensome plant activities in the near term without further clarification from the NRC Staff.

ATTACHMENT 1

Interpretation: XI-1-89-31

Subject: Section XI, IWA-4400; Repair to a Flange - Hydrostatic Test (1980 Edition with Addenda through Winter 1981)

Date Issued: January 26, 1990

File: IN89-023

Question: Is it the intent of Section XI, IWA-4400(a)(3) that a weld repair across the entire width of a seating surface of a raised-face flange require a system hydrostatic test?

Reply: No.

Interpretation: XI-1-92-65

Subject: Section XI, IWA-4710; Pressure Test - Replacement of Bolting (1992 Edition With 1993 Addenda)

Date Issued: February 7, 1994

File: IN94-001

Question: Is it a requirement of IWA-4710(c) to perform pressure testing following the replacement of bolting on a Code Class 1, 2, or 3 mechanical connection with or without the disassembly of the mechanical connection?

Reply: No.

Interpretation: XI-1-95-52

Subject: Section XI, IWA-5214; Repair and Replacement (1983 Edition with Editions and Addenda Through the 1989 Edition)

Date Issued: January 12, 1996

Question: Is it a requirement of IWA-5214(e) to perform pressure testing following the replacement of bolting on a Class 1, 2, or 3 mechanical connection with or without the disassembly of the mechanical connection?

Reply: No.

Interpretation: XI-1-95-48R

Subject: IWA-5214, Repair and Replacement (1980 Edition With the Winter 1980 Addenda Through the 1989 Edition With the 1990 Addenda); and IWA-4710(c), Pressure Tests (1989 Edition With the 1991 Addenda Through the 1992 Edition With the 1994 Addenda)

Date Issued: November 11, 1996

File: IN95-007A*

Question (1): When replacing a valve disc, do the requirements of IWA-5214(e) apply?

Reply (1): No.

Question (2): When replacing any pressure retaining part of a valve that is internal to the valve body/bonnet, do the requirements of IWA-5214(e) apply?

Reply (2): No.

Question (3): When replacing a valve disc, do the requirements of IWA-4710(c) apply?

Reply (3): No.

Question (4): When replacing a valve bonnet and/or body that requires installation by mechanical joints, do the requirements of IWA-4710(c) apply?

Reply (4): Yes.

Question (5): When replacing any pressure retaining part of a valve that is internal to the valve's body/bonnet, do the requirements of IWA-4710(c) apply?

Reply (5): No.

Interpretation: XI-1-98-51R

Subject: IWA-4540(c), Pressure Testing of Class 1, 2, and 3 Items (1995 Addenda Through the 1998 Edition)
Date Issued: September 1, 1999
File: IN99-01 1

Question: Does IWA-4540(c) require a pressure test when installation of the item(s) does not involve any replacement pressure-retaining items?

Reply: No.

Interpretation: XI-1-10-20

Subject: IWA-4540(c) (1995 Edition Through the 1998 Edition)
Date Issued: November 8, 2010
File: 10-1866

Question (1): The text of IWA-4710(c) was moved to IWA-4540(c) in the 1995 Edition with minor editorial revisions. Is Interpretation XI-1-92-65, which referenced IWA-4710(c), equally applicable to IWA-4540(c) from the 1995 Edition through the 1998 Edition?

Reply (1): Yes. The change in location of Code words, or editorial changes to those words, does not invalidate a previously issued interpretation.

Question (2): Does replacement of only bolting in a mechanical joint constitute making a mechanical joint?

Reply (2): No.

Interpretation: XI-1-10-30

Subject: IWA-4540(c) (1998 Edition)
Date Issued: May 16, 2011
File No.: 11-808A

Question (1): Does IWA-4540(c) require a pressure test and VT-2 examination of a mechanical joint NPS 1 and smaller made in the course of a repair/replacement activity?

Reply (1): No.

Question (2): During the performance of a pressure test required by IWA-4540(c), if leakage is detected in a mechanical joint exempted from a pressure test in IWA-4540(c), do the requirements of IWA-5250(a)(2) apply?

Reply (2): No.

Interpretation: XI-1-01-18

Subject: IWA-4700, Pressure Testing (1991 Addenda Through the 1995 Edition) and IWA-4540 (1995 Addenda Through the 2000 Addenda)

Date Issued: May 29, 2001

Question: Is it the intent of Section XI, with the elimination of IWA-5246 to expand the scope of the VT-2 examination to include all items within the isolable portion subject to the pressure test?

Reply: No. Only the brazed joints and welds made in the course of a repair/replacement activity require pressurization and VT-2 visual examination during the test.

Interpretation: XI-1-98-52R

Subject: IWA-4700, Pressure Tests; IWA-5120, System Pressure Tests for Repair/Replacement Activities (1992 Edition With the 1992 Addenda)

Date Issued: September 1, 1999

Question: Is it a requirement of IWA-4700 and IWA-5120 that the entire system be subjected to a VT-2 examination when the area of a repair/replacement activity that is required to be pressure tested is not isolable within a portion of a system?

Reply: No.

Interpretation: XI-1-83-66

Subject: Section XI, Division 1, IWA-4000 and IWA-7000, Hydrotesting of Repaired or Replaced Components

Date Issued: December 12, 1984

Question: When performing repairs and installation of replacements under the 1977 Edition of Section XI, with the Summer 1978 Addenda and later Editions and Addenda, are the hydrostatic tests performed (and test pressure used) in accordance with Section XI or the original Construction Code?

Reply: When performing a repair or installing a replacement under Section XI only, the Section XI hydrostatic tests are performed. The original Construction Code hydrostatic tests are not required.

Interpretation: XI-1-86-13R

Subject: Section XI, IWA-5211, IWA-5214, IWA-4000, and IWA-7000; System Pressure Tests - Disassembly and Reassembly

Date Issued: June 10, 1991

Question (1): In Section XI (1983 Edition), IWA-5214 is titled "Repairs and Replacements." Does this paragraph apply only to activities conducted under the IWX-4000, "Repair Procedures" (except IWP), and IWX-7000, "Replacements" articles in other than Class 1 systems?

Reply (1): Yes.

Question (2): When using Section XI, (1977 Edition with Addenda through Summer 1978, and later Editions and Addenda through the 1983 Edition), is a system pressure test (IWA-5000) required whenever the pressure boundary is opened and closed (e.g., replacing a valve bonnet gasket)?

Reply (2): No. A Section XI pressure test is required only when the pressure boundary is opened and closed in the course of a Section XI repair or replacement, with the exception of those items exempt under IWA-4000/7000, (see Interpretation XI-1-89-08).

Interpretation: XI-1-89-08

Subject: Section XI, Division 1, IWA-5000, IWC-5000, IWD-5000; Pressure Test Requirements for Replacement of Nuts, Bolts, and Studs

Date Issued: November 14, 1988

Question (1): Does Section XI, Division 1, 1977 Edition With Addenda Through Summer 1980, require a pressure test to be performed in accordance with IWA-5214 following the replacement of nuts, bolts, or studs on components?

Reply (1): No.

Question (2): Does Section XI, Division 1, 1980 Edition With the Winter 1980 Addenda [when IWA-5214(e) was introduced] and later Editions and Addenda Through the 1986 Addenda, require a pressure test to be performed in accordance with IWA-5214 following the replacement of nuts, bolts, or studs on components?

Reply (2): No.

Interpretation: XI-1-83-83

Subject: Section XI, Division 1, IWA-4310 and IWA-7400(d), Hydrostatic Testing of Replacement Parts

Date Issued: May 14, 1985

File: BC83-179

Question (1): Does Section XI, Division 1, 1983 Edition, through the Winter 1984 Addenda, IWA-7000, require pressure retaining replacement parts (i.e., valve bodies, bonnets, and disks) to be hydrostatically tested when not supplied in a complete valve assembly (component)?

Reply (1): IWA-7121 states, "The Owner or Owner's agent shall be responsible for providing the specification requirements for design, fabrication, and examination as applicable for the replacements."

Question (2): Do IWA-7310 and IWA-7400(d) of Section XI, Division 1, apply to the utility (Owner) or do they also apply to the valve replacement part manufacturer?

Reply (2): They apply only to the Owner.

Question (3): May replacement piping valves and fittings, 1 in. nominal pipe size (NPS 1) and smaller, be exempted from Construction Code hydrostatic test requirements under IWA-4310 and IWA-7400(d)?

Reply (3): Yes.

Interpretation: XI-1-92-66R

Subject: IWA-7400, NPS 1 and Smaller - Attachment Weld (1977 Edition With Summer 1978 Addenda and Later Editions and Addenda Through the 1990 Addenda)
Date Issued: September 11, 2002

Question: When a component connection, NPS 1 and smaller, is welded to a pipe or component greater than NPS 1, does the attachment weld to the larger pipe or component fall under the same exemption as stated in IWA-7400(d) [IWA-7400(b) in the 1988 Addenda through the 1990 Addenda]?

Reply: Yes.

Interpretation: XI-1-86-21R

Subject: Section XI, Division 1, Table IWB-2500-1, IWP and IWV; Defect Removal Without Welding (1977 Edition With Addenda Through Summer 1978, and Subsequent Addenda Through Winter 1985)
Date Issued: September 19, 1989
File: IN86-004*

Question (1): When maintenance is performed which does not involve welding or does not involve metal removal, do the requirements of Section XI apply?

Reply (1): No; however, Table IWB-2500-1 applies.

Question (2): When maintenance such as removal and reinstallation of the same bolting material, tightening of fasteners, and replacement of gaskets, packing, and seals, where such maintenance does not require welding or removal or replacement of pressure retaining material, do the rules of Section XI apply?

Reply (2): No, except for the retest requirements of IWV and IWP.