RulemakingComments Resource

From: Frederick, Greg <gfrederi@epri.com>
Sent: Wednesday, May 04, 2016 5:16 PM
To: RulemakingComments Resource
Cc: Tony.Cinson@nrc.gov; Rudland, David; Dyle, Robin; Taylor, Tina; Edsinger, Kurt; Gary Park; Ed Gerlach; Sisk, John J.; Marc Hall (Generation - 6); WEICKS, JOSEPH G; RC Folley (roy.folley@aps.com); Patten, Daniel B; McCracken, Steve
Subject: [External_Sender] Comments - Approval of ASME Code Cases (Docket ID NRC-2012-0059)
Attachments: EPRI-WRTC Letter to NRC on Code Case Rulemaking_Final.pdf

Attached please find comments on proposed rulemaking for “Approval of ASME’s Code Cases” from the EPRI Welding and Repair Technology Center. Reference Docket ID NRC-2012-0059 dated 03/02/2016).

ELECTRIC POWER
RESEARCH INSTITUTE

Email to Rulemaking.Comments@nrc.gov.

May 4, 2016

Secretary, U.S. Nuclear Regulatory Commission
Washington, DC 20055-001
ATTN: Rulemakings and Adjudications Staff

Subject: Approval of American Society of Mechanical Engineers' Code Cases (Docket ID NRC-2012-0059 03/02/2016)

Dear Sir or Madam,

This letter provides comments to the subject proposed rulemaking as solicited in the March 2, 2016 edition of The Federal Register on approval of American Society of Mechanical Engineers' code cases (Docket ID NRC-2012-0059). These comments are provided on behalf of the nuclear power plant Owner and Operator members of the Welding and Repair Technology Center (WRTC) at the Electric Power Research Institute (EPRI).

A. Code Cases Proposed To Be Approved for Unconditional Use

DG-1296: Draft Regulatory Guide 1.147 Rev. 18

We have no comments on this portion of the proposed rulemaking.

B. Code Cases Proposed To Be Approved for Use With Conditions

DG-1296: Draft Regulatory Guide 1.147 Rev. 18

Code Case N-666-1, *Weld Overlay of Class 1, 2 and 3 Socket Welded Connections Section XI, Division 1*

Two new conditions were added to this Code Case:

> (1) A surface examination (magnetic particle or liquid penetrant) must be performed after installation of the weld overlay and seal weld on Class 1 and 2 piping socket welds. Fabrication defects, if detected, must be dispositioned using the surface examination acceptance criteria of the Construction Code identified in the Repair/Replacement Plan.

The words "and seal weld" in the first sentence should be removed from the condition. This phrase is not germane to the rationale provided for the condition in the Federal Register. Further, this phrase implies that the seal weld requires surface examination in addition to surface examination of the final overlay. It is not appropriate to require surface examination of weld beads whose only function is to seal a leak so that a sound weldment can be applied.

CHARLOTTE OFFICE
1300 West W.T. Harris Boulevard, Charlotte, NC 28262-8550 USA • 704.595.2000 • Fax 704.595.2860
Customer Service 800.313.3774 • www.epri.com

> (2) When the construction code does not require a surface or volumetric examination of the completed weld overlay a VT-1 visual examination is required to be performed after completion of the weld overlay and seal weld for Class 3 piping.

This condition is fully redundant to the existing requirements of the Code Case, which already require VT-1 examination of the seal weld and the completed overlay for all Classes of socket welds, regardless of what the construction code requires. Inclusion of such a condition merely causes confusion to the user in trying to understand what additional requirements the condition is intended to impose. Therefore, this condition should be deleted.

Code Case N-754 *Optimized Structural Dissimilar Metal Weld Overlay for Mitigation of PWR Class 1 Items, Section XI, Division 1*

The third condition proposed for this Code Case reads:

> 3) The first layer of weld metal deposited shall not be credited toward the required optimized weld overlay thickness unless the chromium content of the first layer is at least 24 per cent. The presence of the first layer shall be considered in the design analysis requirements of paragraph 2(b) of Code Case N-754 regardless of the chromium content.

This requirement inversely paraphrases existing statements in the Code Case, again causing confusion to the user as to what the condition actually adds to the existing requirements. Further, by paraphrasing the requirements, essential technical requirements, such as chrome content in the dilution zone, are omitted which we do not believe is the intent of the condition. The Federal register states that the reason for this condition is that "In this instance, the NRC felt the word "may" needed to be changed to "shall" in the second sentence in paragraph 1.2(f)(2) as a condition for use of this Code Case." [The second sentence currently reads: "The first layer of weld metal deposited may not be credited toward the required thickness, but the presence of this layer shall be considered in the design analysis requirements in 2(b).] In the English language, when the term "may" is followed by the word "not", the phrase means the same as "shall not." However, if this phrase is truly a concern for some, then the condition should be written exactly as the Code Case except change the one word "may" to "shall."

Code Case N-789 *Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping, Section XI, Division 1*

The second proposed condition reads as follows:

> 2) For the pressure pad design, the higher of the 2 times the actual measured corrosion rate and 4 times the estimated maximum corrosion rate for the system must be used. If the actual measured corrosion rate in the degraded location is unavailable, the estimated maximum corrosion rate for the system assumed in the

> design must be calculated based on the same degradation mechanism as the degraded location.

This condition is contrary to several NRC SERs that have evaluated and approved the Code Case for application at dozens of domestic plants. Those SERs require that the reinforcing pad be designed to accommodate twice the actual measured corrosion rate or *if unknown*, then 4 times the maximum experienced in that or similar system at the same plant for the same degradation mechanism. Corrosion rates are dependent upon many system variables - one primary factor being the amount and frequency of fluid flow. To impose the rate that may occur on a seldom-used dead-leg of a system to an area of active flow where the actual corrosion rate has been measured is technically inappropriate. Since the monthly monitoring imposed by Condition 1 was initiated for the same reason that this condition was proposed – namely, the potential for an unexpected corrosion rate – this condition should be removed.

Table 5 Section XI Code Cases That Have Been Superseded

DG-1296: Draft Regulatory Guide 1.147 Rev. 18

Code Case N-666 *Weld Overlay of Class 1, 2, and 3 Socket Welded Connections, Section XI, Division 1*

A new condition has been added to N-666 which now listed as a Superseded Code Case:

> A surface (magnetic particle or liquid penetrant) examination must be performed after installing the seal weld and weld overlay on Class 1 and 2 piping socket welds. The fabrication defects, if detected, must be dispositioned using the surface examination acceptance criteria of the Construction Code identified in the Repair/Replacement Plan.

As stated in our comment on N-666-1, above, the phrase “seal weld and” should be removed from the first sentence.

Also, the addition of a new condition to a Code Case that was previously unconditionally approved in the Reg. Guide, and is now superseded, seems inappropriate. Several plants would likely have this version of the Code Case in their Section XI “tool box” until the end of their current Inspection Interval, and would be apparently (but not obviously) bound by the new condition upon issuance of the new revision to Regulatory Guide. In the third paragraph under B. DISCUSSION the draft Regulatory Guide includes the statement “If a Code Case is implemented by a licensee and a later version of the Code Case is incorporated by reference into 10 CFR 50.55a and listed in Tables 1 and 2 during the licensee’s present 120-month ISI program interval, that licensee may use either the later version or the previous version. An exception to this provision would be the inclusion of a limitation or condition on the use of the Code Case that is necessary, for example, to enhance safety.” Perhaps this could be supplemented with another sentence such as “In this case, the condition will be entered for the superseded Code Case under Table 5.”

C. ASME Code Cases Not Approved for Use (DG-1298/RG 1.193)

Code Case N-818 *Alternative Requirements for Preservice Volumetric and Surface Examination, Section III, Division 1*

The reason for disapproval of this Code Case includes the statements "…(PNNL) work has shown that performing a full volume examination for fabrication flaws is significantly different from an inservice examination. For example, examination from two directions is necessary to detect certain circumferentially oriented fabrication flaws such as lack of fusion. The work has also shown that the second leg of V-path can be applied to ferritic materials on a limited basis but will be difficult to apply to austenitic materials and dissimilar metal welds. Another finding is that surface conditions are critical with respect to detecting and characterizing fabrication flaws…" The Code Case includes Mandatory Appendix I which requires that the technique(s) to be applied for the volumetric procedure be demonstrated on specimens simulating geometric, material and surface conditions to be encountered during implementation. The fact that the examination will be difficult should not be a reason to prohibit it - provided it is adequately demonstrated to be suitable for its intended purpose.

The reason for disapproval of this Code Case also includes the statement: "Additionally, the PNNL research suggests that the ability to consistently and accurately characterize fabrication flaws by type (i.e., planar or volumetric) is difficult. This capability is essential if acceptance criteria based on flaw type is to be applied." This statement is not applicable to this Code Case, since the acceptance criteria provided in Mandatory Appendix II is based solely on depth and characterization as surface or subsurface. There is no requirement to characterize the flaw by type (i.e., planar or volumetric).

The rationale also includes a statement that the concept "could be acceptable if appropriately justified and the scope limited to ferritic materials." The sole purpose for this Code Case is to prevent, during construction of future nuclear piping systems, the unnecessary weld repair of benign workmanship flaws in austenitic and nickel alloy weldments such as those that have caused havoc with IGSCC and PWSCC in the first generation of nuclear reactor systems. So the suggestion that its application should be limited to ferritic weldments defeats the purpose of the Case. We believe that the Regulator should rather promote the concept using the relief request process, which could include Regulator involvement during the procedure demonstration.

We appreciate the opportunity to provide comments to this proposed rulemaking. Should you have any questions pertaining to the comments provided in this letter, please contact Greg Frederick or Dan Patten for clarification.

Sincerely,

Gregory Frederick
Program Manager, Welding and Repair Technology Center (WRTC)
Electric Power Research Institute
704-595-2571
gfrederick@epri.com

Dan Patten
WRTC Integration Committee (IC) Chair
Mgr. – Fleet Programs Engineering
FirstEnergy Nuclear Operating Company (FENOC)
330-328-7183
dpatten@firstenergycorp.com

Cc: Tony Cinson, NRC (Tony.Cinson@nrc.gov)
Dave Rudland, NRC (Dave.Rudland@nrc.gov)
Robin Dyle, EPRI (rdyle@epri.com)
Tina Taylor, EPRI (ttaylor2@epri.com)
Kurt Edsinger, EPRI (kedsinge@epri.com)
Gary Park, ASME (Gary@iddeal.com)
Ed Gerlach, ASME (gerlachengr@gmail.com)
John Sisk, Energy Northwest (jjsisk@energy-northwest.com)
Marc Hall, Dominion, (marc.hall@dom.com)
Joe Weicks, Entergy, (jweicks@entergy.com)
R.C. Folley, APS, (roy.folley@aps.com)