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General Comment

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Attachments

6

RIS 2014-##

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July 7, 2014

U.S. Nuclear Regulatory Commission
Washington, DC 20555-001

Re: Comments on RIS 2014-## (NRC-2014-0129), "Embedded Digital Devices in Safety-Related Systems"

The MIT Nuclear Reactor Laboratory offers the following comments on the above proposed Regulatory Issue Summary:

(p.1) *"The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to clarify NRC's technical position on existing regulatory requirements ..."*

None of the NRC documents listed in the RIS that refer to digital equipment requirements (including BTP 7-19 and NUREG-0800) are applicable to non-power reactors (NPRs). The only NRC regulatory document specifically addressing the use of digital equipment in NPRs is a proposed amendment to Chapter 7 of NUREG-1537, which, as far as we can determine, is still in draft form. Because specific regulatory requirements on digital equipment for NPRs are not yet officially established, and the purpose of the RIS is stated as clarification on existing regulatory requirements, inclusion in this RIS of non-power reactor digital equipment is premature.
At the very least, NPRs should be included in a sector separate from nuclear power plants, as was done for fuel cycle facilities, in order to better clarify which guidance documents NRC would consider applicable for digital equipment use at NPRs.

(p.3) *"The NRC Staff provides guidance applicable to components containing software, firmware, and logic developed from software-based development systems."*

As NUREG-0800 and BTP 7-19 do not apply to NPRs, it is difficult to interpret the applicability of this section to NPRs such as the MIT Reactor, and thus it is unclear whether such guidance exists.

(p 5-6) *"Safety-related equipment with embedded digital devices must comply with the following regulations and should address the following guidance, as applicable:"*

We agree that sufficient planning and review are necessary for any safety-related component, regardless of whether or not it contains an embedded digital device. The three documents listed here that are relevant to the MITR (NUREG-1537 Part1, NUREG-1537 Part 2, and RG 2.5) contain guidance for review of safety-related components but do not, in their current form, address digital devices.

(p. 6) *"Equipment consisting of commercial grade items with older non-digital technology is being replaced with commercial grade products containing embedded digital devices ... that may not have been developed in accordance with guidance and acceptable industry standards."*

It is not clear from this RIS what guidance and industry standards would be acceptable for use in NPRs.

(p 6-7) *"Safety-related equipment with embedded digital devices must comply with the following regulations and should address the following guidance, as applicable:"*

As none of the guidance documents listed in this section are applicable to NPRs, it is unclear what, if any, common-cause failure (CCF) criteria should be applied.

(p.13) *Backfitting and Issue Finality*

As stated above, we believe it premature to issue an RIS for NPRs based on draft regulatory guidance. If it is the intent of the NRC to apply some or all of the nuclear power plant guidance to NPRs, or, by use of this RIS, to enact draft requirements, a backfit analysis would be necessary, as this would represent a change from previous NRC positions.

Sincerely,

Thomas H. Newton Jr.
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