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Chief, Rules and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

SUBJECT: Draft Regulatory Guide DG-1163, "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing"

PROJECT NUMBER: 689

The Nuclear Energy Institute (NEI)¹ is submitting these comments on behalf of the nuclear industry, in response to the *Federal Register* notice, dated September 22, 2006, *Volume 71, Number 184*, which invited written comments on the Proposed Revision 3 of Regulatory Guide 1.20 (DG-1163), "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing."

The enclosure provides comments and recommendations from the industry. Significant comments include identification of areas where the scope of this regulatory guide has expanded beyond the guidance in revision 2 without justification. Other comments provide recommendations for clarification including improved delineation of requirements for BWR vs. PWR testing.

¹ NEI is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear material licensees, and other organizations and individuals involved in the nuclear energy industry.

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Template = ADM-013

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We appreciate the opportunity to comment on the draft documents. If you have any questions regarding this effort please contact Leslie Kass at (202) 739-8115; lck@nei.org.

Sincerely,



Russell J. Bell

Enclosure

c: Mr. Jai R. Rajan
Mr. Stephen C. O'Connor
NRC Document Control Desk

DG-1163 Comments

Section	Priority (Hi, Med, Low)	Basis	Description of the Issue	Proposed Alternate
C.X.Y.n.m	1, 2 or 3	Basis for the comment	Description of the issue, why this is an issue.	Mark-up or alternate wording
A B C.2 Reg. Anal.	1	Expansion beyond Rev 2 not justified	Sections A, B, and C.2, and the Regulatory Analysis indicate that this guidance has been expanded from just the reactor internals to include “steam dryers and other main steam system components” such as steam generators for the PWRs. This significant expansion of the scope has been justified with just two sentences in the Regulatory Analysis, section 1, second paragraph. The “operating experience” discussed in Section B seems to address only BWRs. More justification (with specific references to the mentioned “operating experience” and “studies”) is needed for this scope expansion beyond the reactor internals, particularly for the expansion to the PWR steam generators and other main steam system components.	Omit the expansion
2.0	1		Section 2.0 requires detailed analysis of all steam system components for both new applicants and licensees desiring to uprate.	The option of on-line monitoring during power ascension (vs. detailed pre-analysis) should be provided to assess potential high vibration conditions for

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				readily accessible components outside the reactor vessel. Such components include SRVs, ERVs, attached small bore piping, etc.
2.1	1		Several considerations for the use of the acoustic circuit model appear to reveal Continuum Dynamics Inc (CDI) proprietary information.	Document should be reviewed by CDI to ensure proprietary information is deleted.
C.2	1	Expansion beyond Rev 2 not justified	Section C.2 has been expanded from “vibration analysis” to “vibration and fatigue analysis” or “vibration and stress analysis.” There appears to be no discussion of this expansion in the Regulatory Analysis. The need for this additional analysis should be adequately justified.	Omit the expansion
C.2.2	1	Expansion beyond Rev 2 not justified	Section C.2.2, last paragraph, appears to request implementation of a “new” operational program. This is another scope expansion, from startup testing guidance to guidance for continuing operation. There appears to be no discussion of this expansion in the Regulatory Analysis. The need for this additional program should be adequately justified.	Omit the expansion

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C.2.4 C.2.5	1	Unnecessary submittal of preliminary info	Section C.2.4 (1) and C.2.5 (5) request the submittal of preliminary raw, unevaluated information. This should be revised to make the preliminary information available to inspectors onsite rather than a docketed submittal.	C.2.4 A summary of the results should be in the form of preliminary and final reports: (1) The preliminary report... for evaluating such data. This preliminary report should be made available to the NRC for onsite review. (2) If the results of the comprehensive vibration assessment program are acceptable, the final report should be submitted to the NRC and should include the following information...
C.2.5	1	Inappropriate request for commitment by Vendor	Section C.2.5 states "A schedule for the vibration assessment program should be established and submitted to the NRC (1) ...Part 50, (2) during the review of the design certification document (DCD) for standard design certification applications under 10 CFR Part 52, or (3) as part of the application for COL applications under 10 CFR Part 52 that do not reference a standard design." It is inappropriate for the DCD to make schedule commitments for startup and operational programs that may be very different for the first plant of the design than for the 20 th plant of the same design.	"A schedule for the vibration assessment program should be established and submitted to the NRC (1) ...Part 50, (2) during the review of the design certification document (DCD) for standard design certification applications under 10 CFR Part 52, or (3) as part of the application for COL applications under 10 CFR Part 52 that do not reference a standard design. "

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			The schedule information should be left to the COL applicant who references the DCD.	
C.2.5	1	No regulatory basis for the language	Sections C.2.5 (3) and (4) both state that information “will be submitted” to NRC for review. The regulation that requires these submittals should be referenced. Alternatively, if no regulation exists which requires the submittal of these documents, the appropriate language for this guidance document is “should be submitted” to NRC for review.	“should be submitted”
General	2		Document is focused almost exclusively on BWRs.	Suggest a more balanced treatment of BWRs and PWRs, splitting them into two sections or two documents.
General	2		Specific statements within the document are inappropriate regarding PWR reactor vessel internals (e.g. See last paragraph in Section 2.1, third from the last paragraph in Section 2).	
General	2		Measurements of steam generator dryers and the main steam line might not be fully adequate unless the full steam flow were occurring. This is not the case during hot functional testing, when most of the PWR internals testing is carried out.	

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General	3		The need to account for "bias and random uncertainties" is repeated numerous times throughout the document.	Suggest a single separate section discussing need to account for uncertainties.
Discussion	3		Only flow-induced excitations are mentioned in the discussion. RCP-induced vibrations should also be considered.	
Discussion	3		In the discussion it seems to suggest that analysis results be used to select transducer locations. This instrumentation location should be clarified to address the implementation of a changed component design.	
Discussion	2		Figure 1 - It has been the position that testing of one component change in one program and another component change in another program could be used to justify no testing in a subsequent unit that incorporated both changes. This should be incorporated into the guidelines.	
Discussion	2		Definition of "Flow excited resonances" - Does this refer to Helmholtz resonators, excitation of acoustic modes by turbulence or some other phenomena?	
Discussion	3		Clarification of information on what assessments should be made for or	

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			examples of "small adverse flow effect to magnify substantially" is requested.	
Discussion	3		Clarification of the intent/meaning of hydrodynamic loading (flow induced vibration) is requested.	
Introduction	3		A notation of the corresponding PWR Regulatory Guide for Preoperational and Startup Testing corresponding to the BWR Reg. Guide 1.68.1 should be included.	
1	2		The terms "limited in-service operation" and "insufficient operating history" should be defined. It also should provide guidance in defining the term "insufficient".	
2	3		Under item 3, add a clarification or examples of the statement "with an acoustic and/or structural resonance (sometimes called self excitation)"	
2	2		The second and third paragraphs of Section 2.2 seem to apply only to BWRs. This and other areas of the draft are unclear relative to their application to BWRs or both PWRs and BWRs.	Write one guide for PWRs and one for BWRs or separate sections of the same guide be written for PWRs and BWRs.
2	3		The new addition, item (f), to this draft might be improved by a definition of	

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			"bias errors".	
2.2	2		Clear differentiation is needed between requirements for “new applicants” versus “current licensees planning to uprate”. For example it is not clear if an instrumented steam dryer test is required for licensees wishing to uprate.	Suggest separate sections covering requirements for New applicants and Current Licensees.
2.3	2		Inspection requirements do not recognize current industry inspection guidance (i.e. BWRVIP I&E Guidelines).	BWRVIP I&E Guidelines should be referenced as acceptable inspection scope.
C	3		Multiple definitions for the various designs types (Prototype, Valid Prototype, Limited Valid Prototype...etc). These definitions are almost indistinguishable.	Suggest reducing number of design type variations and clarification of definitions.
C.2.1(2)	2		Change the words "all natural frequencies" to “all significant natural frequencies”.	
C.2.2(2)(a)	3		This implies that measurements are required during initial startup of PWRs during power ascension. Is this a correct interpretation? Note that RVI tests are performed during hot functional.	
C.2.4(2)(b)	3		Does this imply that extensive pressure measurements are required?	
C.2.5	3	Inconsistent language	Section C.2.5 (5) uses the language “will	“should be submitted”

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			be presented” to the NRC. This unfamiliar term should be revised to be consistent with the language resulting from the above comments on submittal of the reports.	
C.3.1.1 and 3.2.1	2		Some applicants have utilized previously obtained non-domestic test information in accordance with Rev. 2 of this guide for other applications. We requests changes to this section in order to allow the continued use of this non-domestic test information.	
Backfit Analysis	3	Unclear language	The Backfit Analysis states “Applicants and licensees may continue to use the original version of this regulatory guide if they so choose.” This statement is confusing for applicants. More explanation is needed on how an applicant would not be evaluated against the criteria in this updated Regulatory Guide.	