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Alexander Marion
VICE PRESIDENT
NUCLEAR OPERATIONS
NUCLEAR GENERATION DIVISION

August 27, 2010

Ms. Cynthia K. Bladey
Chief, Rules, Announcements, and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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Subject: Comments on Draft Regulatory Guide, DG-1248, "Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements." (*Federal Register* of May 27, 2010, 75 FR 29785) Docket ID NRC-2010-0187

Project Number: 689

Dear Ms. Bladey:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)¹ submits the attached comments on the subject draft Regulatory Guide (DG).

NEI appreciates the endorsement of NEI 09-09, Revision 1 without exception. This level of agreement on the methodology for implementing scenario based testing will enhance industry adoption and implementation.

If you have any questions, please feel free to contact John Butler at (202) 739-8108; jcb@nei.org or Scott Bauer at (202) 739-8058; sab@nei.org.

Sincerely,

Alexander Marion

Attachment

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

SONSI Review Complete

E-RDS = ADM-03

Template = ADM-013

add = R. Carpenter (RCA)
-M. Case (MSC)

Comments of Draft Guide, DG-1248

Item	Reference	DG-1248 Original Text	Comment	Proposed Revision to DG-1248
1	Page 5, Section 2.b under "NRC Acceptance and Endorsement of ANSI/ANS-3.5-2009"	b. In regard to Section 3.1.4, "Malfunctions," simulation facility licensees should demonstrate that they have conducted performance testing of the malfunctions listed in the standard, as applicable to the design of the reference plant, at least once in the life of the simulation facility and that the associated test documentation includes the completed test results. If performance testing of a malfunction has been completed more than once, then the licensee need only retain the latest test results. The staff recognizes that simulator malfunction test results may be retained longer than 4 years after the completion of each malfunction test. Therefore, regardless of how long it has been since the malfunction test has been performed, the NRC expects simulation facility licensees to make the results of these malfunction performance tests available	<p>This paragraph is not consistent with the records retention requirement in 10 CFR 55.46(d)(1) which states that "The results of performance tests must be retained for four years after the completion of each performance test or until superseded by updated test results."</p> <p>The CFR reference allows malfunction tests to be discarded after four years. There is no requirement to maintain performance tests records longer than four years.</p>	b. This paragraph should be deleted.

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		for NRC review, either before, or concurrent with, the preparation for each operating test or requalification program inspection.		
2	Page 6, Section 2.f under "NRC Acceptance and Endorsement of ANSI/ANS-3.5-2009"	f. In regard to Section 4.4.3.2, "Simulator Scenario-Based Testing," simulation facility licensees should also adhere to the NEI standardized approach for the conduct, performance, and documentation of simulator SBT, as described in NEI 09-09, Revision 1. The NRC expects licensees to perform other simulator performance testing, such as that described in Section 4.4.3.1, "Simulator Operability Testing"; Section 4.4.3.3, "Simulator Reactor Core Performance Testing", and Section 4.4.3.4, "Post-Event Simulator Testing," separately and independently from the testing described in Section 4.4.3.2.	Editorial; delete words "other" and "such as that" from the last sentence to provide clarity to the guidance.	f. In regard to Section 4.4.3.2, "Simulator Scenario-Based Testing," simulation facility licensees should also adhere to the NEI standardized approach for the conduct, performance, and documentation of simulator SBT, as described in NEI 09-09, Revision 1. The NRC expects licensees to perform other simulator performance testing, such as that described in Section 4.4.3.1, "Simulator Operability Testing"; Section 4.4.3.3, "Simulator Reactor Core Performance Testing", and Section 4.4.3.4, "Post-Event Simulator Testing," separately and independently from the testing described in Section 4.4.3.2.
3	Page 6, Section 2.g under "NRC Acceptance and Endorsement of ANSI/ANS-3.5-2009"	g. In regard to Section 4.4.3.3, "Simulator Reactor Core Performance Testing," simulation facility licensees should meet the	First sentence: Add "within the scope of simulation" to be consistent with Section 3.4.3.3 of Standard.	g. In regard to Section 4.4.3.3, "Simulator Reactor Core Performance Testing," simulation facility licensees should meet the requirements of the standard within

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		<p>requirements of the standard with respect to real time and the conduct of core evolutions involved. The NRC expects a facility licensee's plant-referenced simulator to utilize models relating to nuclear and thermal-hydraulic characteristics that replicate a core load in the nuclear power reference plant. If the plant-referenced simulator is used to meet NRC applicant experience requirements, as described in 10 CFR 55.31(a)(5), then the most recent core load (e.g., the current reference plant core load, or if the reference plant is in a refueling outage, the core load just previous to the outage) in the nuclear power reference plant for which a license is being sought must be utilized.</p>	<p>Delete "with respect to real time"; there are some simulator performance tests that would require an eight hour run time (such as a peak xenon test). The fast time simulation feature is used to conduct such tests to avoid an extensive amount of run time since simulator utilization by the operations training programs is very high.</p> <p>Clarify "and the conduct of core evolutions involved". It is not clear what is intended by this phrase.</p> <p>The third sentence references "the most recent core load". License classes may run through more than one fuel operating cycle, so reactivity manipulations may be conducted on core loads that precede and follow a refueling outage. To accommodate this, clarification has been added.</p>	<p>the scope of simulation with respect to real time and the conduct of core evolutions involved. The NRC expects a facility licensee's plant-referenced simulator to utilize models relating to nuclear and thermal-hydraulic characteristics that replicate a core load in the nuclear power reference plant. If the plant-referenced simulator is used to meet NRC applicant experience requirements, as described in 10 CFR 55.31(a)(5), then the most recent core load (i.e., the core load(s) that existed during the time of the NRC applicant's initial training program since reactivity manipulations may be performed in more than one fuel cycle) the current reference plant core load, or if the reference plant is in a refueling outage, the core load just previous to the outage in the nuclear power reference plant for which a license is being sought must be utilized.</p>
4	Page 6, Section 2.h under "NRC Acceptance and Endorsement of ANSI/ANS-3.5-2009"	<p>h. In regard to Section 4.4.3.4, "Post-Event Simulator Testing," simulation facility licensees should meet the requirements of the standard with respect to demonstrating that the plant-referenced simulator</p>	<p>Second sentence:</p> <p>Delete "As a minimum" to place focus on demonstrating simulator performance for items 1 through 4.</p> <p>Delete "reference plant events" and "such as" and add "relevant</p>	<p>h. In regard to Section 4.4.3.4, "Post-Event Simulator Testing," simulation facility licensees should meet the requirements of the standard with respect to demonstrating that the plant-referenced simulator performance and response compares favorably to the reference plant's performance</p>

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		<p>performance and response compares favorably to the reference plant's performance and response without significant deviation from the sequence of events for the reference plant event. As a minimum, a licensee should demonstrate on the plant-referenced simulator those reference plant events that result in (1) the automatic initiation of an engineered safety system, (2) the manual or automatic trip of the nuclear reactor, (3) a significant unplanned or unexpected reactivity change, (4) the manual or automatic trip of the main turbine-generator while online with the electrical grid, and (5) any other event deemed appropriate by the facility licensee within 60 calendar days following the event to ensure that fidelity is being met and maintained.</p>	<p>unplanned or unexpected (off-normal) events-deemed appropriate by the facility licensee"; this language provides some degree of flexibility to the licensee and is consistent with the intent of Sections 3.4.3.4 and 4.4.3.4 in the Standard. Since the items listed in Section 2.h could occur during normal plant evolutions and routine surveillance testing and result in a large scope of testing, it should be clarified that the unplanned, unexpected, and off-normal events should be the focus of post event simulator testing.</p> <p>Delete item 5 from the list and add the following clarification: "The comparison should be performed and any significant deviations identified within 60 days of the event." This is to clarify that resolutions to noted deviations are not required to be resolved within 60 days; depending on the scope of the deviation, efforts to resolve could take longer than 60 days (and may require vendor support or model replacements).</p>	<p>and response without significant deviation from the sequence of events for the reference plant event. As a minimum, a licensee should demonstrate on the plant-referenced simulator those relevant unplanned or unexpected (off-normal) events reference plant events deemed appropriate by the facility licensee, such as that result in (1) the automatic initiation of an engineered safety system, (2) the manual or automatic trip of the nuclear reactor, (3) a significant (>5%) unplanned or unexpected reactivity change, and (4) the manual or automatic trip of the main turbine-generator while online with the electrical grid. and (5) any other event deemed appropriate by the facility licensee within 60 calendar days following the event to ensure that fidelity is being met and maintained. The comparison should be performed and any significant deviations identified within 60 days of the event. Evaluation and correction of the deviations should be in accordance with the station's corrective action program.</p>
5	Page 7, Section 4 "Acceptability of Licensee's Simulation Facility"	Licensees who maintain simulation facilities certified under previous editions of ANSI/ANS-3.5 (-1998, -	<p>First sentence:</p> <p>Replace "testing documentation" with "testing methodology". It is</p>	Licensees who maintain simulation facilities certified under previous editions of ANSI/ANS-3.5 (-1998, -1993, and -1985) endorsed by the

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		1993, and -1985) endorsed by the NRC are encouraged to, but are not required to, revise the software and testing documentation to maintain the simulation facility in accordance with ANSI/ANS-3.5-2009. The NRC staff recognizes that it will take some time for these simulation facility licensees to transition to ANSI/ANS-3.5-2009. Therefore, the NRC staff anticipates that simulation facility licensees will voluntarily move to ANSI/ANS-3.5-2009 following the date of the final regulatory guide (e.g., Regulatory Guide 1.149, Revision 4).	not intended that previous simulator documentation would be revised to transition to ANS-3.5-2009. In the last sentence, it is recommended that the word "therefore" be deleted.	NRC are encouraged to, but are not required to, revise the software and testing documentation methodology to maintain the simulation facility in accordance with ANSI/ANS-3.5-2009. The NRC staff recognizes that it will take some time for these simulation facility licensees to transition to ANSI/ANS-3.5-2009. The NRC staff anticipates that simulation facility licensees will voluntarily move to ANSI/ANS-3.5-2009 following the date of the final regulatory guide (e.g., Regulatory Guide 1.149, Revision 4).
6	Page 7, Section 5, second paragraph under "Use of Simulation Facility for Multiple Plants"	The NRC will only administer operating tests on a plant-referenced simulator that meets the Commission's requirements, as described in 10 CFR 55.46. In addition, a licensee must request Commission approval if it plans to administer the NRC operating test using other than a -plant-referenced simulator or the plant.	Correct typo "a-plant-referenced" to "a plant-referenced."	The NRC will only administer operating tests on a plant-referenced simulator that meets the Commission's requirements, as described in 10 CFR 55.46. In addition, a licensee must request Commission approval if it plans to administer the NRC operating test using other than a plant-referenced simulator or the plant.
7	Page 8, Section D, third paragraph under "Implementation"	The NRC staff recognizes that a commitment to ANSI/ANS-3.5-2009 is	The process to transition to the new standard may not be seamless and transparent and of	The NRC staff recognizes that a commitment to ANSI/ANS-3.5-2009 is voluntary on the part of simulation

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		<p>voluntary on the part of simulation facility licensees. Since its last revision to Regulatory Guide 1.149, the NRC staff has worked closely with simulation facility licensees and other interested stakeholders through the NEI LOFG to facilitate voluntary movement to a single industry consensus standard. The NRC has determined that movement to a single consensus standard is in the best interest of simulation facility licensees, as well as NRC inspectors and examiners and the general public. The NRC is confident that such a movement will be seamless and transparent with minimal burden, if any. As a result, NRC review and inspection of plant-referenced simulators for compliance with the requirements of 10 CFR 55.46 will be more uniform and consistently implemented when the staff carries out the Reactor Oversight Process baseline Inspection Procedure, IP-71111.11, "Licensed Operator Requalification</p>	<p>minimal burden for some licensees and, therefore, this statement should be removed.</p> <p>Producing malfunction test documentation could be a significant burden and costly if the licensee will be required to conduct old malfunction tests. This is particularly true for those facilities that eliminated records over 4 years old as allowed by 10CFR 55.46.</p>	<p>facility licensees. Since its last revision to Regulatory Guide 1.149, the NRC staff has worked closely with simulation facility licensees and other interested stakeholders through the NEI LOFG to facilitate voluntary movement to a single industry consensus standard. The NRC has determined that movement to a single consensus standard is in the best interest of simulation facility licensees, as well as NRC inspectors and examiners and the general public. As a result, NRC review and inspection of plant-referenced simulators for compliance with the requirements of 10 CFR 55.46 will be more uniform and consistently implemented when the staff carries out the Reactor Oversight Process baseline Inspection Procedure, IP-71111.11, "Licensed Operator Requalification Program."</p>

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		Program.”		
8	Page 10, 1 st paragraph under “Alternative Approaches”	The benefit of updating and revising Regulatory Guide 1.149 is that it would provide guidance to ensure that nuclear power plant simulation facilities used for operator training, license examinations, and applicant experience requirements are maintained in accordance with the industry’s most recent consensus standard, which will preclude negative training and inappropriate operator license evaluations. Simulation facilities that meet the minimum scope and fidelity requirements of ANSI/ANS-3.5-2009 must be able to demonstrate, on a continuing basis, compliance with the Commission’s simulation facility regulations, as described in 10 CFR 55.46.	Replace “which will preclude” with “which will further help to preclude.”	The benefit of updating and revising Regulatory Guide 1.149 is that it would provide guidance to ensure that nuclear power plant simulation facilities used for operator training, license examinations, and applicant experience requirements are maintained in accordance with the industry’s most recent consensus standard, which will further help to preclude negative training and inappropriate operator license evaluations. Simulation facilities that meet the minimum scope and fidelity requirements of ANSI/ANS-3.5-2009 must be able to demonstrate, on a continuing basis, compliance with the Commission’s simulation facility regulations, as described in 10 CFR 55.46.
9	Page 10, 2 nd paragraph under “Alternative Approaches”	The impact to the NRC would be the costs associated with preparing and issuing the revised regulatory guide. The impact to the public would be the voluntary costs associated with reviewing and providing	See the comments under Item 7 above. The costs and burden may not be minimal for some licensees.	N/A

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		<p>comments to the NRC during the public comment period. The impact to facility licensees would be the cost of implementing the new standard. The value to the NRC staff and facility licensees would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for demonstrating compliance with the Commission's simulation facility scope and fidelity requirements, as described in 10 CFR 55.46, and during other interactions between the NRC and facility licensees. The staff believes that simulation facility licensees would incur little or no cost (for licensees who have not already moved to ANSI/ANS-3.5-2009, the cost is expected to be minimal, if any, since significant human resource burdens and simulator performance testing time savings are anticipated as a result of moving to one standard, which the proposed guide is advocating).</p>		

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10	Page 11; "Glossary"	N/A	The glossary should be eliminated as the terms are adequately defined in the noted references for each definition.	N/A
11	Appendix B, Item 11	Modeling and hardware discrepancies identified during the conduct of SBT are documented and entered in accordance with the site simulator configuration management procedures. Note: Discrepancies that directly affect operator response (or action) or expected plant response must be resolved before the SBT test results can be judged as satisfactory.	Regarding the sentence; "Modeling and hardware discrepancies identified during the conduct of SBT are documented and entered in accordance with the site simulator configuration management procedures"... The term "and entered" is redundant to "documented" in the configuration management process and should be removed.	Modeling and hardware discrepancies identified during the conduct of SBT are documented and entered in accordance with the site simulator configuration management procedures. Note: Discrepancies that directly affect operator response (or action) or expected plant response must be resolved before the SBT test results can be judged as satisfactory.
12	Appendix B, Page B-1	The draft regulatory guide includes this appendix so that the public can discern the staff's acceptance and endorsement of the Nuclear Energy Institute's (NEI) industry technical guidance document, NEI-09-09, Revision 1. The final guide may or may not include this appendix.	NEI recommends that this appendix not be included in the final regulatory guide and any references to it in the body of the regulatory guide should be removed.	N/A