

NRC Staff Comments on “Outline of Seismic Walkdown Requirements” March 23, 2012 Revision A

Recommendation 2.3 Program Objective

The objective of this effort is to develop a walkdown procedure that will identify and address plant specific degraded, nonconforming, or unanalyzed conditions and verify the adequacy of strategies, monitoring, and maintenance programs such that the nuclear power plant can respond safely to earthquakes. The walkdown will also verify current plant configuration against the current licensing basis and verify the adequacy of current strategies and maintenance plans. The procedure should address identification of SSCs that must perform during or after an earthquake and that are to be used in the protection of the reactor and spent fuel pool(s), including the ultimate heat sink. The procedure should address the requested information described on page 4 of Enclosure 3 to the 50.54(f) Request for Information Letter issued March 12, 2012. The procedure should consider NUREG-1742, EPRI Report NP-6041, the SQUG GIP, and common issues and findings discussed in the responses to TI 2515/183.

Comments on Section 1: Personnel Qualification

1. The document mentions three types of personnel involved in the seismic assessment but only two are discussed. “Plant Operations Personnel” need to be added to the list. Plant Operations Personnel should be involved with the review and necessary enhancement of the SSEL.

Comments on Section 2: Identify Scope of SSCs¹

1. The NRC staff finds the use of the IPEEE SSEL as a starting point to be appropriate; however, it needs to be augmented to address the safety of spent fuel pools, containment structures and equipment, ultimate heat sink functions, and any new or significantly modified SSCs to fully meet the objectives of the requested information.
2. The complete list of equipment to be considered for the walkdowns and walk-bys (this is further discussed in comment 2 in Section 3) should be comprised of the IPEEE SSEL as supplemented by the following:
 - a. A representative sample of unique containment equipment (e.g., containment isolation equipment, containment pressure control using fans and sprays, hydrogen-control related equipment).
 - b. The spent fuel pool and any equipment necessary to maintain adequate water inventory.
 - c. Any safety-significant equipment that has been modified or replaced as a result of insights from the IPEEE program.
 - d. Unique equipment types required to utilize the ultimate heat sink that is not a part of the selected sample based on the IPEEE SSEL.

¹ The “scope of SSCs” to be considered in the evaluation will be called the SSEL (“seismic safe shutdown equipment list.”) The term SSEL was used in the NRC’s IPEEE program to designate the list of SSCs considered in an IPEEE SMA (seismic margin assessment) or an IPEEE SPRA (seismic probabilistic risk assessment.). Hence, although there is a risk of confusion, the term “IPEEE SSEL” will be used to denote the list used in the IPEEE evaluations, and the simpler term “SSEL” will be used for the “Scope of SSCs” to be considered in this new evaluation.

3. The guidance document should define what is meant by equipment. For example, does it include support structures, distribution systems (piping, cable trays, conduit, duct, etc.), tanks, etc. Does it include elements of the area, such as clearances/gaps between structures?
4. As stated above, SSCs required to maintain containment integrity and containment functions or required for safety of the spent fuel pool should be included in the complete list of equipment to be considered for the walkdowns. In some cases, these SSCs are regularly inspected as part of other activities. These SSCs should still be added to the SSEL and the routine inspections may be used as justification to remove them from the walkdown list, if appropriate. During the subsequent NRC review, staff may confirm this information and review existing inspection documentation. SSCs related to the SFPs may be removed from the sampling if a clear and transparent justification is provided.
5. The NRC staff finds a sampling approach to be acceptable. However the 10% sampling rate provided in the March 23, 2012 document has not been adequately justified to ensure that the objectives of recommendation 2.3 are met. A rationale for the sampling approach should be provided, as discussed more below in item 6. This justification should address the basis for the degree of sampling. It is understood that the specific justifications for the sampling in each NPP submission will be on a plant-specific basis; however, comprehensive guidance related to the sampling procedures with examples should be included to the extent practicable.
6. In prioritizing equipment for walkdowns and area walk-bys, the following equipment categories and considerations should be taken into account:
 - Diversity in the classes of equipments and diversity within a class
 - Adequate representation of both frontline and support systems
 - Equipment on the SSEL that was not previously walked down as part of a seismic program; all equipment that has been added or modified based on insights from the IPEEE program should be included
 - Equipment identified as potentially causing or mitigating seismically-induced flooding
 - Equipment identified as potentially causing or mitigating seismically-induced fire
 - Equipment that is in adverse environmental conditions
 - Equipment categories in which problems were identified in the walkdowns conducted in response to Temporary Instruction 2515/183
 - Equipment related to containment and spent fuel pools (as discussed above)
 - Equipment identified in the IPEEE as having the lowest HCLPF in the SMAs or as being among the highest risk contributors in the SPRA
 - SSCs associated with IPEEE findings (anomalies, vulnerabilities, etc.)
7. In addition to others noted in the NEI document, the plant operations personnel should review and approve the final SSEL and affirm that it accounts for significant changes, including in equipment related to containment, spent fuel pools, and the ultimate heat sink.
8. Safety-related equipment that has been involved in adverse operating experiences at each plant should be added to the SSEL of that plant. Additionally, a

consideration of Licensee Event Reports, NRC Information Notices, and operating experience across the industry should be used to highlight other important pieces of equipment to be included.

Comments on Section 3: Conduct Seismic Walkdowns²

1. Guidance on planning, including how to prepare for the walkdown, should be provided in detail.
2. Reasonably accessible areas without high radiation dose rates that contain a portion of the equipment on the SSEL should be “walked by” with an emphasis on looking for potential seismic interactions, obvious degradation, the potential for seismically-induced fire, the potential for seismically-induced flood, the potential for post-earthquake access issues (if access is important), anomalous conditions, and temporary modifications that have been left in place beyond the time allowed for such changes. Examples of issues that need to be documented, particularly degradation, would be very helpful in the guidance for those conducting the walkdowns. This would help ensure a mutual understanding of expectations between the NRC and licensees. This should also be included in walkdown training. A simple checklist (provided in the guidance document) can be used for this purpose.
3. For equipment that is located in cabinets, a representative sample of the cabinets should be opened and the equipment directly inspected. A justification for the approach by which the sample is selected should be provided. The anchorage of both the cabinet and the equipment should be inspected. Where cabinets are not opened, the level of inspection should be noted as a walk-by, not a walkdown. The need to open cabinets should be addressed in the planning stage.
4. Walkdowns for equipment that cannot be accessed or opened except in an outage can be delayed, provided that the remainder of the documentation is provided when due and that a schedule for completion of the walkdowns is provided. An updated final report is to be provided to the NRC when the walkdowns are completed.
5. The March 23, 2012 NEI document states that “It is not necessary to evaluate such inaccessible equipment further, provided it does not constitute more than 20% of the sample (i.e., about 20 items).” The idea of a percentage limit is not justified. Rather, it is necessary, item by item, to justify why it is acceptable to omit equipment claimed to be inaccessible rather than to delay evaluation until the equipment is accessible. Equipment that could be walked down at a later date should be added to the list provided to the NRC (discussed in comment 4, above) with a schedule for completion.
6. Provide appropriate checklists in the guidance document

Comments on Section 4: Resolution of Items

1. A brief discussion in the guidance that points to the existing programs that will be used to address any problems identified will help to provide clarity and to assure no gaps or overlaps in procedures and programs.
2. According to the 50.54(f) letter, if any condition identified during the walkdown activities represents a degraded, non-conforming, or unanalyzed condition (i.e., non-compliance with the current licensing basis) for an SSC, the report must describe actions that were

² In this section, both the equipment walkdowns and area walk-bys are considered to be part of the walkdown

taken or are planned to address the condition using the guidance in Regulatory Issues Summary 2005-20, Revision 1, Revision to NRC Inspection Manual Part 9900 Technical Guidance, "Operability Conditions Adverse to Quality or Safety," including entering the condition in the corrective action program. Reporting requirements pursuant to 10 CFR 50.72 should also be considered. Additionally, these findings should be considered in the Recommendation 2.1 hazard evaluations, as appropriate. A stronger tie to this element of the 50.54(f) letter and the corrective action program should be provided in the guidance.

Comments on Section 5: Submittal Report

1. A proposed detailed outline of the table of contents for the submittal reports would be helpful to assist licensees and make the submittals more uniform.
2. The summary of the results of the walkdowns should be supplemented with a table discussing each item that was included on the walkdown, including what was found. The report should also provide a summary and table detailing any degraded, nonconforming, or unanalyzed conditions that were identified on the walk-bys. The report should describe the resolution to any issues identified and these should be included on the tables.
3. The report should document the modifications that occurred as a result of insights from the IPEEE.
4. The report should include the complete SSEL and lists of the SSCs and areas that were evaluated. The report should also include a list any areas that are unable to be inspected due to inaccessibility and a schedule for when the walkdown will be completed.
5. Care should be taken to assure that the submittals address all of the requested information in the 50.54(f) letter.

Comments on Peer Review

1. Peer review should be addressed throughout the process.
2. Having two people checking each other during the walkdown is not sufficient peer review by itself, although it is beneficial and supports a peer review function during the walkdowns.
3. Peer review should be performed for all aspects of the program: SSEL development (including operations/systems review); sampling; walkdown procedures; documentation requirements; conduct of the walkdown; etc.