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October 12, 2017

Mr. Christopher G. Miller  
Director, Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**Subject:** Significance Determination Process Revisions

**Project Number: 689**

Dear Mr. Miller:

At the September 21, 2017, public meeting with the Reactor Oversight Process (ROP) Task Force, the NRC staff asked for input on the priority industry would give to current or proposed revisions of Significance Determination Process (SDP) procedures (i.e., Inspection Manual Chapters in the 0609 series). On behalf of the industry, the Nuclear Energy Institute (NEI)<sup>1</sup> offers the information in this letter in response to the staff's request for input on SDP priorities.

### **1. IMC-0609, Appendix B, Emergency Preparedness SDP**

We consider the EP SDP to warrant the highest priority of NRC attention to SDPs. Our concern with the EP SDP is that it produces more unnecessary Greater-than-Green outcomes, on a percent-of-findings basis, than any other SDP. In doing so, we believe it undermines public confidence in the state of emergency preparedness at nuclear power plants. In addition, it implies that EP procedures and equipment are more important to safety than plant features and procedures that assure safe operation to prevent triggering the emergency plan. We are developing a separate letter on this subject, to submit to you in the near future. That letter will outline our proposal for transforming the EP SDP to better risk-inform its results.

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<sup>1</sup> The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. 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 cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

## **2. IMC-0609, Appendix E, Security SDP**

We are pleased that the Office of Nuclear Security and Incident Response (NSIR) already has in progress an effort to review and reassess the security SDPs. An NSIR representative briefed industry on this effort at the September 21 ROP public meeting. The representative emphasized a planned closed meeting in October as the first opportunity for industry security representatives to discuss details on the staff's proposed changes in the SDPs. We urge NSIR and NRR to make a copy of the staff's proposed changes available to industry well in advance of that planned closed meeting, so that this discussion can be as productive as possible. We expect to have more to say on the substance of the proposed SDP revisions following the proposed October meeting.

## **3. IMC-0609, Appendix M, Qualitative SDP**

We consider this the least important of ongoing SDP revision projects, and one that should be terminated. The project was begun as a part of the SDP timeliness improvement effort, with the rationale that staff could turn to the qualitative SDP when it appears that a quantitative SDP would take too long or trigger burdensome arguments with the licensee about assumptions and modeling of the performance deficiency.

The NRC's concerns about SDP timeliness appear to have been addressed through other means, primarily implementation of the Inspection Finding Resolution Management (IFRM) process in November 2016 and the SDP timeliness metric in the ROP self-assessment procedure. The NRC has not completed its final evaluation of IFRM results, but results so far appear to warrant allowing continued runtime of the IFRM and SDP metric, before considering Appendix M as a potential solution to concerns about SDP timeliness. Moreover, with the advent of the IFRM, we view Appendix M as the appropriate option of last resort after the IFRM process concludes that no other SDP tool is suitable for the particular performance deficiency in play. Given the vast resources invested in developing and maintaining the more than 20 SDP procedures NRC now has in place, we would expect such occurrences to be rare, especially in cases of "regulatory significance" (i.e., Greater-than-Green, or GTG, outcomes).

Our own research bears that out. In the eight year period 2008-2015, the NRC issued 11,896 findings of all colors, of which 143 were Greater-than-Green findings. Only 20 of the GTG findings were based on Appendix M, and nine of those were issued in one year (2013). What was different about that year? It included a cluster of initial post-Fukushima flooding inspection findings. Eight of the nine GTG findings processed in 2013 using Appendix M were associated with flooding inspection findings. When that cluster of eight flooding findings in 2013 is removed from the data, the number of times Appendix M produced a GTG result (i.e., a result of regulatory significance) over the period 2008-2015 was one to three per year. Such a small number of instances each year appears to provide little reason for a massive effort to revise Appendix M.

At the September 21 ROP meeting, the NRC staff reiterated their belief that they are required to revise Appendix M due to Commission direction. The staff cite a sentence from SRM-SECY-13-0137 as the basis for the obligation they feel to revise Appendix M. That sentence is highlighted and presented in context in the excerpt below.

*"The Commission has disapproved the staff's Recommendation 1, to develop an integrated risk-informed approach for evaluating the safety significance of inspection findings for new reactor designs using qualitative measures to supplement the risk evaluations. The staff should enhance the significance determination process (SDP) by developing a structured qualitative assessment for events or conditions that are not evaluated in the supporting plant risk models. Areas where such a qualitative assessment may prove useful include evaluation of performance deficiencies associated with passive safety systems, digital instrumentation and controls, and human performance issues. The SDP should continue to place emphasis on the use of the existing quantitative measures of the change in plant risk for both operating and new reactors. The staff should develop guidance to address circumstances that are unique to new reactors, for example due to uncertainty of the reliability of passive systems, structures and components (SSCs) or other SSCs with limited operational experience. The staff should submit a paper to the Commission with its proposed approach for any revisions to the SDP for new reactors at least one year before the scheduled implementation of any changes to the Reactor Oversight Process (ROP). **The staff should also evaluate the need to provide additional clarity on the use of qualitative factors for operating reactors to provide more transparency and predictability to the process.**"*

[Emphasis added]

Taken in context, the highlighted statement does not appear to be a mandate to revise Appendix M, and particularly not a revision as sweeping as that under development the past 18 months. In addition, given the infrequency of use of Appendix M, we do not see Appendix M as the most effective way for the staff to communicate and clarify its use of qualitative factors. There are other opportunities in which the staff can better communicate and clarify its use of qualitative factors. One such example arose from discussions at a September 19, 2017 public meeting on the treatment of common cause failure in the Significance Determination Process. In that meeting, industry described a way in which NRC could add meaningful risk information to an SDP outcome by clarifying the use of qualitative factors relevant to the evaluation of common cause failure. Another example is the Emergency Preparedness SDP. Clarifying the use of qualitative factors to better risk-inform the current approach to the EP SDP would add value in the sense we believe the Commission intended when it communicated the above quoted statement and would support in today's environment.

We urge that NRC terminate the Appendix M revision currently in progress. If the agency is aware of other compelling reasons to continue the project that have not been shared with industry thus far, we would still urge the agency to suspend the project on the basis of its low benefit-cost ratio, until higher value projects are completed and the effectiveness of the IFRM and SDP timeliness metric are understood.

#### **4. IMC-0609, Appendix F, Fire Protection SDP**

At the September 21 ROP meeting, NRR staff briefed us for the first time on this roughly two-year-old project. We mention it here primarily as an example of SDP revisions that have proceeded out of public view. In addition, the September 21 briefing highlighted a recurring challenge for industry – the staff holds

differing views on the need to seek comments from outside stakeholders when revisions are developed. As we explained on September 21, even when the staff believes that an SDP revision is purely to improve NRC efficiency (i.e., is believed to have no effect on outside stakeholders), every SDP revision does, in fact, affect outside stakeholders. At the very least, industry needs to understand each revision, its basis and intent. Additionally, SDP revisions that appear to be of consequence only internally to NRC often trigger new or different expenditures of industry resources in their implementation in ways not anticipated by NRC staff writing the revision.

We urge NRC management to revise and communicate to staff a new set of expectations about proposed SDP revisions. We believe those expectations should include the following:

- a. Provide a problem statement and data and analysis that provides the basis for the NRC's conclusion that the SDP revision is necessary and justified;
- b. Provide a project plan that communicates the scope of work, the resources, budget and schedule for the project, and a timeline showing specific milestones for obtaining public and industry comments before implementation. Ideally the project charter should demonstrate that the benefits of the revision project exceed the expected cost in NRC and industry resources.
- c. Provide opportunity for meaningful discussion with the public and industry on the revision effort at inception, project initiation and appropriate milestones along the way.
- d. Identify measures of success for determining the effects of the revised SDP for future comparison to the *status quo ante*.

We appreciate the opportunity to provide input on current and proposed SDP revisions. We hope this input helps the staff better align SDP project priorities and direction with those of its stakeholders.

If you have any questions, please contact my lead staff member on this project, James Slider ([jes@nei.org](mailto:jes@nei.org), 202-739-8015), or me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Earls", with a long, sweeping underline.

Christopher E. Earls

c: Mr. Joseph Giitter, DRA/NRR, NRC  
Mr. Brian E. Holian, NRR, NRC