



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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February 2, 2018

MEMORANDUM TO: Anthony T. Gody, Jr., Director
Division of Reactor Safety, Region II

FROM: James A. Isom, Senior Reactor Operations Engineer /RA/
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Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE PUBLIC MEETING ON DECEMBER 12,
2017 TO DISCUSS COMMENTS RECEIVED ON THE USE
OF LICENSEE SELF-ASSESSMENTS IN THE NRC
ENGINEERING INSPECTION PROGRAM

On December 12, 2017, NRC management and staff conducted a meeting to discuss the several topics which were identified during the previous public meeting on October 11, 2017 and which required additional review by NRC management and staff. The purpose of the December 12, 2017 public meeting was to share the results of the review conducted by NRC management and staff on these topics which were:

- Engineering Performance Indicators
- Length of Inspection Cycle
- Conduct of Fire Protection Inspection
- Conduct of Comprehensive Engineering Inspection
- Licensee Self-Assessment
- Measurement of Effectiveness

Enclosure 1 contains the meeting attendance list.

Enclosure 2 contains the presentations and handouts discussed during the meeting.

Mr. Tony Gody, Director, Division of Reactor Safety, Region II provided the opening remarks. Mr. Gody provided a recap of the Engineering Inspection Working Group Charter and a summary of where the working was currently aligned.

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The working group has developed observations on the current inspection program as follows: (1) the current NRC engineering inspections are focused on the reasonable assurance that engineering activities at the sites do not result in the introduction of latent conditions that could prevent proper operation of systems, structures, and components during an accident; (2) the NRC needs to maintain the appropriate level of independent oversight of licensee's in this area; (3) some of the current engineering inspections do not need to be completed as a standalone inspection; (4) current methods for inspection sample selection can lead to the perception of re-inspection; and (5) the existing inspection program does not have provision to give credit to those licensees who conduct credible self-assessments. A summary of the current alignment of the working group was discussed as follows: (1) heat sink engineering inspection can be accomplished as a sample rather than a standalone inspection; (2) the in-service inspection can be improved to add an overall 10-year interval; (3) the boric acid inspection can be accomplished as a sample rather than a standalone inspection; (4) the comprehensive engineering inspection agility can be improved; (5) the 10 CFR 50.59 inspection can be incorporated into another inspection; and (6) the fire protection inspection agility can be improved. Open items from the previous public meeting were acknowledged as a lead into the main body of the meeting. The open items included the following: (1) Engineering Performance Indicators, (2) Length of Inspection Cycle, (3) Conduct of Fire Protection Inspection, (4) Conduct of Comprehensive Engineering Inspection, (5) Licensee Self-Assessment, and (6) Measuring Effectiveness.

After Mr. Gody's remarks, Mr. Halnon of First Energy Corporation provided feedback for the nuclear industry. Mr. Halnon stated that the nuclear industry is 80 percent aligned on the changes being considered for the ROP engineering inspections. He acknowledged that the licensee are responsible for their licensing basis and believed that based on current U.S. nuclear fleet's safety performance, the time is right for the NRC to consider transformational change to not only the ROP engineering inspections but also to other areas of the ROP.

Following Mr. Halnon's remarks, NRC managers and staff presented their various topic areas. Mr. Mark Jeffers, Branch Chief, Engineering Branch 2, Division of Reactor Safety, Region III, made a presentation of the use of engineering performance indicators.

Engineering Performance Indicators

The working group and stakeholders did not identify a performance indicator that would directly measure the licensee's identification of latent conditions introduced by an engineering error. Both NRC and industry stakeholders believed there may some indirect measurement of engineering performance but the measurement would not link directly to the identification of latent conditions. Public stakeholders communicated concern with any reduction in independent NRC oversight in this area. The working group concluded that indirect performance indicators should not be used to reduce NRC inspection.

Mr. Halnon agreed with NRC's assessment that engineering performance indicators could be used to identify latent conditions introduced by an engineering error and stated that the nuclear industry will also not pursue development of a performance indicator in this area.

Length of Inspection Cycle

Mr. Jim Isom, Senior Operations Engineering, Reactor Inspection Branch, NRR/DIRs and Mr. Glenn Dental, Branch Chief, Engineering Branch 2, Division of Reactor Safety, Region I

facilitated a conversation to weigh the pros and cons of a three, four, or five year inspection cycle. In the past, biennial inspection cycles were instituted for selected reactor inspections based on the Reactor Oversight Process (ROP) Development Working Group Recommendations. For example, the predecessor to the current Design Bases Assurance (DBA) inspection, the Safety System Design Performance Capability (SSDPC) inspection, had a biennial inspection frequency. Likewise, the Fire Protection inspection also became a biennial inspection. Over the years, the NRC made improvements to the operating reactor inspection program, and also changed the inspection frequency to some of the engineering inspections. For example, the inspection frequency of the Component Design Bases inspection (CDBI) was shifted to every three years in 2008. This shift was based primarily on having already completed inspection of many risk-significant components at many of the licensees since the start of ROP.

The working group discussed some of the topics that would be considered when weighing the options to logically formulate a recommendation regarding inspection cycle length.

The first topic is entitled "*Touch Points.*" The term *Touch Points* refers to how often or how frequent NRC is on-site independently inspecting a particular area. These independent inspections provide the NRC feedback that licensees are implementing their engineering activities and addressing engineering issues in a timely manner. Clearly infrequent touch points can result in the delays of NRC independent inspection identifying engineering errors. Too often and the NRC independent inspection could be overly burdensome with potentially less benefit. The working group discussed the view that the Agency should consider having a touch point or independent engineering inspection at least once a year. No stakeholders disagreed with this view point.

The second topic is entitled "*Inspection Agility.*" The term *inspection agility* refers to the ability of the inspection program to respond to emergent trends, issues, and regulatory needs. Too long of an inspection cycle would require the NRC to implement temporary inspections if the issue or concern was potentially safety significant. Too short a cycle and the NRC would find it difficult to identify pertinent and substantial focus areas or topics to inspect. Regardless of the cycle frequency, the NRC needs to leverage insights from current Operating Experience to ensure the most risk significant and potentially deficient areas are independently inspected. There was general agreement among all stakeholders that improvement in how the NRC selects inspection focus areas was warranted and that it was both important for the NRC to have inspection agility but also have a predictable regulatory outcome.

The third topic is entitled "*Implementation Efficiency.*" The term *implementation efficiency* refers to achieving the appropriate level of independent inspection with the optimal level of resources. The discussion around this topic involved subjects such as inspector training, inspector proficiency, inspection and regulatory consistency, use of contractors, and various ways to improve efficiency. Among all stakeholders there was agreement that inspectors should be properly trained to accomplish the inspection and be proficient with both technical and regulatory aspects of the focus area. Considerable conversation occurred between the industry stakeholders and some public stakeholders on the use of contractors. There seemed to be general agreement that contractors provided considerable technical insight to the inspectors in specialty focus areas but that they could be leveraged differently and perhaps more efficiently. The team agreed that further thought on how to more efficiently use contractors was warranted.

Mr. Greg Cameron, Nuclear Energy Institute (NEI), provide feedback on the effectiveness and efficiency with respect to NRC engineering team inspections. Mr. Cameron stated that some

contractors are not as skilled as NRC inspectors with respect to being able to develop and communicate their issues using a regulatory framework and use of contractors makes inspections, which uses contractors, less predictable. Mr. Cameron also proposed a 5 year inspection cycle which the industry believes is more appropriate at this time.

Mr. Halnon provided additional feedback and stated that it is not the industry's desire to tell NRC how to do their job but there is some deep concerns from the industry staff on contractor requests for information during design inspections and we need to have additional dialogue to solve contractor related concerns being identified by industry.

Mr. Chris Nolan, Duke Energy, also had questions on the predictability of NRC engineering inspections if the NRC developed a more agile engineering inspection program. Mr. Nolan expressed a desire to allow industry sufficient time to prepare for the new type of engineering inspections, which could be developed in the future.

Fire Protection Inspection

The three options being looked by the NRC for fire protection are: minimal changes, shift fire protection to one of the focused engineering samples, and change frequency from every 3 years to every 4 years. Each of the options pros and cons were discussed, with a reminder that the current basis for fire protection inspections includes internal fires are high contributors to risk at many plants, and, as with other engineering inspections, there are no performance indicators for this area. Industry believes that, based on improvements made to key safety issues, triennial fire protection inspection should end and that resident inspectors could cover fire protection issues, with temporary instructions being issued for emergent fire protection issues. The NRC continues to believe that fire protection inspections should continue to occur in some revised format, because of the high risk posed by internal fires.

Mr. Werner discussed in detail the pros and cons associated with a new Fire Protection Inspection which would be stand-alone inspection procedure. Additionally, Mr. Werner provided changes being considered to the Fire Protection inspection based on inspector feedback. These recommended changes from NRC inspectors were as follows:

- Refocus the fire protection inspection on current issues, aging management, and changes to the fire protection program
- Remove the B.5.b (Section B.5.b of NRC Order EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" which required power reactor licensees to mitigate postulated events that could potentially cause loss of large areas of power reactor facilities due to explosions or fires) to another inspection procedure
- Reduce the Fire Protection inspection to 3 inspectors for two weeks.

Mr. Werner also discussed the pros and cons associated with a Fire Protection inspection option in which it is a focused engineering inspection.

Mr. Cameron agreed with NRC assessment of the Fire Protection discussion and stated that they would be providing a letter to the NRC in which they would recommend changes to the current Fire Protection program. Mr. Cameron stated that the industry believes that the purpose

for accomplishing the current suite of triennial fire protection inspections has been achieved and therefore, recommended that the NRC consider performing future fire protection inspection as an engineering focus area.

Comprehensive Team Inspection

Mr. Mark Jeffers, Branch Chief, Engineering Branch 2, Division of Reactor Safety, Region III, provided a description of the new comprehensive team inspection. Mr. Jeffers stated that the three inspection procedures, IP 71111.21M, "Design Bases Assurance Inspection (DBAI) – Team;" IP 71111.17T, "Evaluations of Changes, Tests and Experiments;" and IP 7111.07, "Heat Sink Performance" could be made more efficient using a single and more comprehensive team engineering inspection procedure (CETI).

The purpose of the CETI would be to verify that the safety system components can perform their licensing basis function by reviewing the areas of design, operations, maintenance, testing problem identification and resolution and modification. The CETI would have a similar team composition and inspection schedule as the current DBAI. The focus of the CETI would be risk-informed, inspection of samples not thoroughly inspected before, would consider inspecting of operating experience from recent plant challenges, potentially theme-based and review modifications which may have reduced safety margin. Mr. Jeffers also discussed the advantages and disadvantages from this new CETI approach.

Mr. Halnon of remarked that the plants are not being modified so such comprehensive design inspection may not be necessary. Although the two week inspection structure is acceptable, the industry would like to have an opportunity to provide comments on the new CETI when it is developed.

Licensee Self-Assessments

Mr. Mel Gray, Branch Chief, Engineering Branch 1, Division of Reactor Safety, Region I and Mr. Glenn Dental, Branch Chief, Engineering Branch 2, Division of Reactor Safety, Region I made a presentation of licensee's self-assessments and their role in NRC inspections.

Mr. Gray stated that there has been no decision made with respect to role of self-assessment in ROP engineering program. Issues which have been brought up by members of the Public and other stakeholders are similar to what has been raised in the past with respect to use of licensee self-assessments in the NRC inspection program. Mr. Gray provided additional information on NRC's historical use of licensee self-assessments during pre-ROP time period and also of the 2004 NRC study of 17 greater-than-Green inspection findings as this study provided some insights into a need for more aggressive licensee self-assessments in the engineering design area. Mr. Gray went on to discuss why we should consider a licensee self-assessment option and how they could be beneficial to maintaining reactors safety.

Mr. Dental provided a discussion of how we could accommodate the use of licensee self-assessments in the NRC inspection program. Mr. Dental described several options of how a reduced NRC inspection can be used in combination with licensee's self-assessment activity. Other aspects presented by Mr. Dental included the importance of independence and openness being features of a successful licensee self-assessments.

Mr. Michael Shlyamberg, Nuenergy Inc., provided feedback that for the licensee, best learning and greatest transfer of knowledge occurs while performing self-assessments.

Mr. Chris Nolan of Duke Energy agreed with Mr. Shylamberg and stated that use of licensee self-assessment is a matter of trust between the licensee and the NRC. He stated that the most benefit for the licensee is obtained through implementation of the self-assessment activity and recommended that the NRC and the industry pursue how verification of trust can be accomplished.

Mr. Gody agreed that a license self-assessment that had strong attributes of independence and self-critical feature could be beneficial to all stakeholders.

Mr. Cameron of NEI remarked that there is a need to establish an NRC standard to support licensee self-assessment activity.

Measurement of Effectiveness

Mr. Shakur Walker, Branch Chief, Engineering Branch 1, Division of Reactor Safety, Region II provided a discussion on the importance of measuring inspection effectiveness and how such action could be accomplished. Mr. Walker stated that inspection effectiveness is accomplished through value-added NRC inspection findings, as an independent and knowledgeable regulator and through stakeholder feedback. Additionally, Mr. Walker proved some ways effectiveness measures could be obtained.

Mr. Halnon of First Energy Corporation stated that licensees already have performance indicators such as monthly performance reviews, absence of plant events which challenge operators; absence of plant forced down power evolutions greater than 20 percent and consequential equipment failure.

Concluding Remarks:

Mr. Gody concluded the meeting by stating that the NRC position is that the ROP engineering inspections on some inspection periodicity needs to continue and that the NRC will be prepared to present the engineering working group recommendations to the public sometime in late February of 2018.

Other comments from public stakeholders include:

Mr. Lochbaum of Union of Concerned Scientists stated that achieving success with the current NRC's efficiency and effectiveness review effort for ROP engineering inspections may result in industry back-slide in performance. Mr. Lochbaum stated that we continue to identify old legacy issues which are in the engineering area and cited Fort Calhoun as an example. NEI's proposal for a 5 year inspection was not clear to him because there needs to be more detail in their proposal for Mr. Lochbaum to be able to provide a critique of their proposal. He asked whether industry will allow a representative from the Union of Concerned Scientists to observe an industry self-assessment.

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 TO DISCUSS COMMENTS RECEIVED ON THE USE OF LICENSEE
 SELF-ASSESSMENTS IN THE NRC ENGINEERING INSPECTION
 PROGRAM DATED

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OFFICE	NRR/DIRS/IRIB	
NAME	JIsom	
DATE	01/10/18	

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REACTOR OVERSIGHT PROCESS WORKING GROUP MEETING ON DESIGN
VERIFICATION INSPECTIONS ATTENDANCE LIST
DECEMBER 12, 2017

Anthony Gody	NRC	Greg Halnon	First Energy
Christopher Miller	NRC	Greg Cameron	NEI
Michael King	NRC	Vince Bacanskas	Entergy
James Isom	NRC	Dan Churchman	Southern Nuclear
Mel Gray	NRC	Brian Dorathy	STARS Alliance
Glenn Dental	NRC	Barry Garber	Dominion Energy
Shakur Walker	NRC	David Gudger	Dominion Energy
Mark Jeffers	NRC	Marty Murphy	Xcel Energy
Greg Warner	NRC	Beth Wetzel	TVA
CJ Fong	NRC	Michael Shlyamberg	NuEnergy
		David Lochbaum	Union of Concerned Scientists
		Rick Rasmussen	Conger&Elsea



USNRC Engineering Inspection Review

**Collaborative discussion on open items
from 10/11/17 public meeting**

