UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 1, 2017

MEMORANDUM TO: Joseph G. Giitter, Director
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Stacey L. Rosenberg, Chief ***/RA/***
Probabilistic Safety Assessment Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

SUBJECT: UNITED STATES NUCLEAR REGULATORY COMMISSION AUDIT REPORT ON OBSERVATION OF INDUSTRY INDEPENDENT ASSESSMENT TEAM CLOSE-OUT OF FACTS AND OBSERVATIONS (F&OS)

Background

Regulatory Guide 1.200 (RG 1.200), "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," describes an approach for determining whether the base PRA is acceptable such that it can be used in regulatory decision-making for light-water reactors. RG 1.200 endorses, with clarifications and qualifications, requirements described in the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) ASME/ANS RA-Sa-2009, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications."

Section 1-6 in the ASME/ANS RA-Sa-2009 PRA standard provides the general ASME/ANS requirements for a peer review of a PRA. The industry peer review guidance in Nuclear Energy Institute (NEI) documents NEI 05-04, NEI 07-12 and NEI 12-13 indicates that the peer review assessment is performed against the ASME/ANS RA-Sa-2009 technical requirements for Capability Category (CC) II. The documentation of differences or deficiencies that do not allow a CC II to be assigned are generally labeled facts and observation (F&Os) in the industry peer review guidance documents.

By letter dated February 21, 2017 (Agencywide Documents Access and Management System Accession Number Package: ML17086A4050), the NEI, submitted to the U.S. Nuclear Regulatory Commission (NRC) Appendix X to NEI 05-04, NEI 07-12 and NEI 12-13, "Close-out of Facts and Observations (F&Os) (ML17086A451)."

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Enclosure: As stated

This F&O closure process uses an Independent Assessment (IA) team of industry experts. It is intended to be added as an appendix to the NEI peer review guidance documents listed above. In support of the review of the NEI document, the staff has held several public meetings since the process originated as described in "Recommendations of the Risk Informed Steering Committee Working Group on PRA Technical Adequacy," dated December 2014 (ML14346A332) and listed at the end of the Enclosure.

Objective

In 2016, the staff, with industry support and coordination by NEI, initiated an implementation pilot program to clarify NRC Staff Expectations for the conduct of an independent assessment (IA) team assessment to close-out F&Os. The pilot program included NRC staff observation (i.e., audits) of three IA team pilot reviews with the following objectives;

1. Assess whether Appendix X provides adequate guidance to identify which F&Os can be closed by an IA team and which F&Os need to be closed by a focused scope peer review as specified in the PRA Standard;
2. Assess whether Appendix X provides adequate guidance to allow an IA team to effectively close applicable F&Os by determining that the licensee has adequately resolved the difference or deficiency described in the F&O; and
3. Assess whether the final IA team report contains sufficient information to explain the IA team conclusions and to support NRC staff audits as applicable;

Before each audit, each licensee developed guidance for the IA team based on the draft of Appendix X available at that time. A team of NRC staff and one contractor observed the IA teams' use of the licensees' guidance to review and to close, as applicable, F&Os identified as resolved by the licensee. Appendix X and the licensees' guidance was updated before each audit based on NRC staff and industry feedback.

The three IA team pilot reviews observed were:

• Limerick Generating Station, 7/18/2016 to 7/22/2016
• Peach Bottom Generating Station, 11/15/2016 to 11/17/2016
• Harris Nuclear Generating Station, 1/30/2017 to 2/1/2017

Summary

Based on the NRC staff observations from the pilots for the IA process as described in Enclosure 1, the Probabilistic Licensing Assessment Branch concludes that the February 21, 2017, revision of Appendix X satisfies the three objectives. As summarized in the attachment, identifying which F&Os cannot be closed because they need a focused scope peer review, and assuring the closed F&Os have been resolved consistent with the CC II supporting requirements rely on adequate IA team review and documentation. Additional NRC observation audits or audits of the final report may be performed and requests for additional information may be issued. These actions may be requested to assure transparency in the F&O close-out process and to provide confidence that the process and documentation as implemented supports the IA teams' decisions.

SUBJECT: NRC AUDIT REPORT ON OBSERVATION OF INDUSTRY INDEPENDENT ASSESSMENT TEAM CLOSE-OUT OF FACTS AND OBSERVATIONS (F&OS) DATED_____

ADAMS Accession No: ML17095A252

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NRC Audit Report on Observation of Industry Independent Assessment Team Close-Out of Facts and Observations (F&Os)

1.0 Introduction

Regulatory Guide 1.200 (RG 1.200), "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," describes an approach for determining whether the base PRA is acceptable such that it can be used in regulatory decision-making for light-water reactors. The RG endorses, with clarifications, technical requirements described in the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) has published ASME RA-Sa-2009, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications."

For many ASME/ANS technical supporting requirements (SRs), there are three degrees of precision or resolution referred to as Capability Categories (CCs) (i.e., CC-I, CC-II, and CC-III), with CC-I being the minimum; CC-II considered widely acceptable; and CC-III indicating the maximum achievable scope/level of detail, plant specificity, and realism. For other SRs, the CCs may be combined (e.g., the requirement for meeting CC-I may be combined with CC-II), or the requirement may be the same across all CCs so that the requirement is simply met or not met. For each SR, the peer review team designates one of the CCs or indicates that the SR is met or not met.

Section 1-6 in ASME/ANS RA-Sa-2009, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (PRA Standard) provides ASME/ANS requirements for a peer review of a PRA. These requirements include assessing whether the methodology as it is implemented in the PRA meet the requirements described in the PRA Standard. The industry peer review guidance in Nuclear Energy Institute (NEI) documents NEI 05-04, NEI 07-12 and NEI 12-16 indicates that the assessment is done against the technical requirements for Capability Category (CC) II

Scope

The documentation of differences or deficiencies that do not allow a CC II to be assigned are generally labeled facts and observations (F&Os) in the industry peer review guidance documents. Licensees will often address the deficiencies identified in F&Os by performing a PRA upgrade or maintenance update, or by improving the documentation. Section 1-2.2 of the PRA standard defines PRA upgrade as the incorporation into a PRA model of a new methodology or significant change in scope or capability that impact the significant accident sequences or the significant accident progression sequences. PRA maintenance is any other update to the PRA model. Section 1-5 of the PRA Standard states that PRA upgrades require a follow-on peer review to assess the changes against the PRA Standard. The PRA Standard does not specify how PRA maintenance changes should be reviewed. The independent assessment (IA) close out of F&Os in NEI Appendix X only applies to F&Os whose resolutions are PRA maintenance changes.

Consistent with the guidance in RG 1.200, a licensee must address all F&Os in support of a license amendment request (LAR). This can involve resolving an F&O (i.e., perform or document any missing tasks or documentation) or determining that not resolving the F&O will

not affect the PRA results relied on to support a LAR. RG 1.200 further clarifies that the NRC staff expects that the LAR includes a discussion of the resolution of the peer review F&Os applicable to the parts of the PRA used to support the LAR. The NRC staff has implemented this guidance by requesting that licensees submit applicable F&Os and associated resolution to support the review of risk-informed LARs. The definition of "applicable F&Os" depends on the extent to which the PRA and the risk results are relied on to support each LAR. Some limited scope LARs (e.g., reduction in the number and locations of welds to be inspected) are relatively insensitive to the quantitative results and applicable F&Os are only those the licensee has not resolved and believes might impact the results. Other LARs are very sensitive to the quantitative results (e.g., risk-informed completion time) and applicable F&Os are all F&Os including those the licensee considers resolved. The scope of applicable F&Os for each type of risk-informed application is generally developed during the reviews of the initial or pilot applications.

Submittal of F&Os provides the NRC staff with information related to potential deficiencies in the licensee's PRA and provides information used by the NRC staff to evaluate the impact of those deficiencies on the required conclusions. Deficiencies that have been resolved by the licensee and that have been subsequently reviewed by a follow-up or focused scope peer review (with no new F&Os) are no longer considered deficiencies, are considered closed, and no longer need to be submitted.

The IA team process has been proposed as an alternative approach to independently confirm that deficiencies that have been resolved by a method or approach already used by the licensee that was previously peer reviewed, i.e. maintenance changes.

2.0 Observation Audit Summary

A team of NRC staff and a contractor observed the IA teams as they conducted the F&O close-out reviews for three power plant PRAs at two separate host utilities. The NRC team was supported through communications with NRC headquarters staff regarding specific issues when needed. During the observations, the NRC team had full access to the PRA documentation and logic models that were provided to the IA team. The NRC team was also able to observe all technical discussions between the IA team and the host utility staff, and all internal discussions between the IA team members. These observations allowed the NRC team to understand how the IA team investigated the licensee's proposed F&O resolution, developed their conclusions about the conformance of the proposed resolution with the PRA Standard, documented the results, and communicated the results of their review to the host utility. A team of NRC staff also visited an industry office in Rockville Maryland on January 24, 2017, to review the final IA team reports for the first two IA team assessments.

The NRC team did not participate in the review of the F&O resolution. The NRC team closely followed the evaluations and discussions of selected F&Os to develop confidence that the process supports a systematic, defensible, and documented evaluation of the licensee proposed resolution of F&Os. At various times during the observations, the NRC observers and the IA teams discussed the IA teams' interpretation of the guidance and how the guidance could be improved. The NRC team's comments on the process and the documentation were discussed with industry (meeting summary references provided in Section 5 below) and, as appropriate, reflected in changes to the NRC staff expectations (ADAMS No. ML17097A275) on the process and corresponding changes to the NEI guidance documents.

Each review began with a list of F&Os that the licensee considered resolved and requested IA team review and closure. Although not part of the observation, the host utilities informed the NRC staff that not all F&Os had been included in the list of F&Os for review by the IA team. Some F&Os are not included because the F&O had not been resolved or because the resolution was considered to be a PRA upgrade. Observations from each audit are discussed below.

3.0 Dates and Location of Audits

Limerick: F&O Closure July 18-22, 2016

Location
Exelon Generating Company, LLC
Kennett Square, PA

NRC Audit Observation team
Stacey Rosenberg
Adrienne Driver
Stephen Dinsmore

Preliminary results at meeting conclusion
Closure requested for 115 F&Os
IA team closed 87 F&Os

The IA team started with a comprehensive F&O review procedure developed by the host utility and a table that, for each F&O, included a summary of the F&O, references to the AMSE/ANS PRA Standard supporting requirements, references to the peer review team's full F&O descriptions, and a summary of the licensee's resolution. Extra columns were provided with for the IA team's input on each F&O. The procedure (about 6 pages) and the table allowed the team to quickly evaluate the F&Os and the F&O resolution.

The NRC staff observed that there was extensive interaction between the IA team and the licensee. The IA team checked how well the resolution summary described the resolution and that the resolution for each F&O as described in the table had been incorporated into the PRA model and into the documentation. The IA team did an excellent job of identifying the specific changes that resolved the F&O and looking into the PRA model and documentation to confirm that the changes were actually included in the models and the documents. When multiple errors were noted as part of the F&O, the IA team checked whether all errors had been corrected and if other errors that had not been noted existed.

The approach seems well suited to resolving F&Os (1) where there was a lack of documentation, (2) where specific errors were found by the peer review team, (3) where potential systemic errors were identified, and (4) where the peer review team itself may not have understood the licensee's method or erred in its findings.

The staff observed that, in most cases, the IA team did not revisit the original text of the SRs but only addressed the text describing the F&O in the table and the reported resolution. While generally reasonable, this approach relied on the F&O text and resolution in the table to fully identify the difference between the licensee evaluation and the SR at capability category (CC) II (the reference CC for the peer review).

The assumption that resolving the stated F&O will result in a CC II assignment may not always be valid. In one example, the F&O stated that not all flooding sources had been identified. The licensee reported that the evaluation had been reassessed and the major flooding sources identified. The IA team agreed that the F&O had been resolved because all the major flood sources had been identified. However, the screening of sources that do not contribute to flood risk involves additional SRs, including leak and drainage capabilities and area and component location. It was unclear if the "major flood source" identification fulfilled the SR task associated with identifying all flooding sources on which the F&O was written against. The NRC staff recommended that guidance be provided that clarified that the task in the relevant SR be re-evaluated if necessary.

In a number of cases the team found that the documentation was incomplete. The licensee stated that it could complete the documentation before the final IA team report and, therefore, the F&O should be closed. The IA team agreed in most instances that the licensee should be able to complete the documentation before the IA team completed its final report. This led to the NRC staff recommendation that the documentation supporting the resolution of an F&O must be completed in the licensee PRA before the IA team report is completed in order for an F&O to be closed by the IA team.

The IA team review procedure developed by the host utility stated that the team was not permitted to identify any new F&Os. The staff noted that this prohibition is not consistent with the general peer review process where all information developed by the reviewing experts is utilized to characterize the licensee's PRA consistency with the PRA Standard. The impact of this prohibition was partially mitigated because the IA team's scope of review is primarily focused on identifying and understanding the licensee's proposed resolution of the F&O and any deficiency found during their review would normally be related to the same SR. The deficiency can be communicated and documented by assigning the F&O an open or partially closed status. The NRC staff recommended that, if a prohibition was to be retained against identifying new deficiencies against unrelated SRs, some process be kept to notify the host utility of any observations (i.e., deficiencies in the PRA) from the IA team's review that should be evaluated in the future by the licensee.

The IA team review procedure at this time did not discuss the difference between PRA maintenance and upgrade. The F&O close out process is not intended to be applicable to PRA upgrades. It was observed that the IA team did not consider whether the changes to resolve an F&O were considered upgrades or maintenance changes. For example, the close-out of fire PRA (FPRA) Frequently Asked Question (FAQ) 14-0009, "Treatment of Well-Sealed MCC Electrical Panels Greater than 440 V" (ML15113A241) about damage assessment outside of a well-sealed cabinet was used to resolve an F&O that documented the use of an unapproved method to assess this damage. The lowest values in FPRA FAQ 14-0009 for target damage were used which correspond to having qualified cables inside the cabinet, and thermoset cables above the cabinet. The team simply checked that the values used were from FAQ 14-0009 and not whether the proper values for the plant were used because the verification that the proper targets are used (in this case the types of cables) is in a different SR.

A focused scope peer review on an upgrade would have identified all related SRs and confirmed that the appropriate types of cables were modelled. The NRC staff recommended providing additional guidance to provide justification whether an F&O resolution is, or is not, an upgrade. The NRC staff emphasized that the IA team F&O close-out process is not a replacement for focused scope peer reviews required after an upgrade and that additional guidance on confirming that the resolutions were not upgrades was needed.

In addition to upgrades, some PRA techniques are new methods, i.e., approaches and methods that have never been used before. New methods should be reviewed and accepted by the NRC staff before being used to support a LAR and, after acceptance, would always be an upgrade. Differentiation between PRA maintenance, upgrades, and new methods is an ongoing task the industry and the NRC are working through.

Peach Bottom: F&O Closure and focused-scope peer review November 15-17, 2016

Location
Exelon Generating Company, LLC.
Kennett Square, PA

NRC Audit Observation team
Jonathan Evans
Stephen Dinsmore
Garill Coles (Contractor - Pacific Northwest National Laboratory)

Preliminary results at meeting conclusion
Closure requested for 88 F&Os
IA team closed 67 F&Os

The second IA team review was performed at the same host utility. This team had the same team lead but different participants. The host utility had modified its procedure to incorporate lessons learned from the first review. The modifications included review of the SR on which the F&O was written, defining the three possible outcomes of the F&O review (Open, Partially Resolved, or Closed), and further developing the content of the IA team's final report. The conclusions regarding the strengths of the proposed IA team process were confirmed during the observation of the second review.

This F&O closure IA team review included a focused-scope peer review as part of the process because the host utility identified a PRA upgrade associated with its fire modeling that required a focused-scope peer review. The host utility had implemented an upgrade which re-evaluated the fire modelling and subsequent target cable failure following a fire. The proposed IA F&O closure guidance allows a concurrent focused scope peer review if appropriate review team attend and time is available. The focused scope peer review process has already been endorsed by the NRC and the process was not further evaluated at this observation. Some F&Os related to SRs that were in the same high level requirement as the upgraded evaluation were determined by the Technical Review team not to be applicable to the upgrade and therefore were not evaluated as part of the focused scope peer review. However, the F&Os related to these "additional" SRs were evaluated as part of the IA team F&O closure process. This illustrates an advantage to combining the focused scope peer review with the F&O reviews because all the F&Os, i.e., including those not related to the upgrade, can be addressed. The NRC team did not observe any confusion or unacceptable interactions between performing the focused scope peer review on some SRs and closing F&Os on unrelated SRs. The documentation in the Tables clearly differentiated between upgrade findings (which in this case including several new F&Os) and existing F&O closures.

During this review, there was continued discussions about what constitutes a PRA upgrade and what constitutes PRA maintenance to determine which F&Os can be closed during the IA team review. One example of the complexity of differentiating between update and maintenance was resolution of an F&O stating the identification of inadequate breaker coordination was unclear and perhaps incomplete. The F&O resolution applied a breaker coordination evaluation methodology not applied in the original PRA but that was familiar to the IA team. The IA team determined the resolution to be acceptable. There was no discussion about whether this might have been an upgrade beyond the observation that the host utility had not labeled the change an upgrade.

This F&O review included interaction with two IA team reviewers that were off-site (i.e., remote review). The off-site reviewers participated via teleconference with the on-site review team. Both the NRC observers and the IA team noted that a successful off-site review should include the opportunity for as much interaction between the off-site reviewers and the host utility team as is possible in an on-site review. If done with extensive interactions between the off-site reviewers and the host utility, and limited to a few well defined issues, the consensus was that an off-site review could be useful.

Jensen-Hughes: Final F&O Closure Reports Audits January 24, 2017

Location
Jensen-Hughes
Rockville, MD

NRC Audit Observation Team
Mary Drouin
Adrienne Driver
Jonathan Evans
Stephen Dinsmore

On January 25, the NRC staff observation team traveled to Jensen-Hughes office in Rockville, MD, to review the final reports from the Limerick and Peach Bottom F&O reviews.

The format of the tables in the report included columns for the F&Os from the peer review, the licensee's resolution, and the IA team's discussion and conclusion about the licensee's resolution. The IA team discussion in the report described the changes the licensee made to the PRA. The IA team's conclusions for each F&O resolution included a summarizing determination that the F&O is closed, partially closed, or open. For F&Os that were not considered closed by the IA team, the discussion included any changes that were made (e.g., the partial closure), and identified issues that remained to be resolved.

The documents did not provide any discussion by the licensee on whether the change was an upgrade or maintenance change. The assumption was that the licensee considered the change a maintenance change because otherwise a focused scope peer review and not the IA team closure process should have been used by the licensee. With no licensee discussion, the IA team had no information to review regarding maintenance versus upgrade and the teams did not generate any independent evaluation. The NRC staff does not agree that all the F&Os provided for IA team closure, including some F&Os that were closed, were PRA maintenance. The NRC staff considered that some of the closed F&Os are PRA upgrades that should not have been closed. Without any associated documentation, there was no basis for further evaluation and eventual resolution of the different conclusions.

The differentiation between maintenance and upgrade changes is important and complex and the lack of documentation justifying that all F&Os proposed for IA team review are maintenance changes was considered by the NRC staff as a continuing weakness in the process. Based on the observation that the upgrade/maintenance differentiation was not clear in the final documents from the first two IA team reviews, additional discussions with industry and additional changes in the guidance documents were pursued.

Harris: F&O Closure January 30 - February 1, 2017

Location
Duke Energy
Charlotte, NC

NRC Audit Observation Team
Mehdi Reisi-Fard
Michael Levine
Stephen Dinsmore

Preliminary results at meeting conclusion
Closure requested for 37 F&Os
IA team closed 27 F&Os

This observation was at a different host utility and a different IA Team than the first two IA team reviews. The new review team did not have a plant specific procedure but had the latest draft NEI Appendix X guidance document. There was some initial IA team confusion while the F&Os and the proposed resolutions were read by the team members without the individuals or the team appearing to be proceeding toward the goal of documenting the appropriate closure of each F&O. There was also some discussion among the IA team members about whether three available bins in the draft NEI guidance (Open, Partially Resolved, and Closed) were enough and what each bin meant. Finally, there was some discussions about what should be documented and how it should be documented. These issues did not last more than a day but highlighted the importance of having a reasonable descriptive procedure and templates (i.e., tables) where information can be summarized and where new information can be input. After the first day, tables consistent with the previous IA team reviews were being used by the IA team to structure and simplify the documentation of the review and the conclusions supporting closure of the F&Os.

In response to previous NRC observations on lack of clarity on differentiating between upgrade and maintenance changes, the documentation provided by the host utility to the IA team stated, in general, that “none of the F&O resolutions were an upgrade.” The documentation did not provide a determination and assessment for each F&O on why each resolution was not a PRA upgrade. The IA team, as the previous teams, initially spent little time discussing whether any of the changes were upgrades, deferring instead to the general statement by the host utility. Although the issue about whether the changes were upgrades, or not, was eventually discussed it was primarily discussed in response to questions from the NRC team. Therefore, even at this third IA team review a generic resolution about differentiating between an upgrade and maintenance does not seem to have been systematically addressed consistent with the importance of different paths that need to be taken, i.e., upgrades need a focused scope peer review while maintenance changes need only an IA team review.

As in the previous IA team reviews, and consistent with the complexity of differentiating between maintenance versus upgrades, there were one or two changes to resolve the F&Os that the NRC observers believed could have been assigned as upgrades. For example, the original flooding evaluation had assumed that doors failed open at a fixed number of inches flooding height. An F&O questioned this assumption and the resolution included structural calculations to estimate the flooding height at which different types of doors fail opened. Although the IA team recognized that the door failure height evaluations were introduced after the last peer review, the IA team was reluctant to contradict the host utilities generic assessment that none of the F&O resolutions were upgrades. The continued difficulty that the NRC and the Industry experience in making a more precise distinction between PRA upgrades and PRA maintenance is based, in large part, on inconsistent interpretation of PRA upgrade and maintenance criteria in ASME/ANS PRA Standard and the lack of systematic evaluation of each F&O resolution against even those criteria by the host utility or the IA review team.

Concluding discussions with the host utility, the IA team, and the NRC observing team reached a consensus that the most systematic process to clarify whether an F&O resolution was an upgrade or maintenance would be to address this issue as the F&O resolution itself is addressed. That is, descriptions about why the host utility considered its change to be maintenance and not an upgrade based on comparing the change to the PRA upgrade versus maintenance guidelines in the PRA Standard should be provided in the Table for each F&O similar to the description of the utility's F&O resolution. The IA team should include their evaluation and conclusions in the Table regarding the utility's evaluations about whether the resolution was an upgrade or maintenance. Such a series of documentation will also contribute to a better and more consistent understanding of the differences between upgrades and maintenance.

4.0 Observation Audit Summary

All three pilot observations and the audit of the two IA team reports consistently demonstrated that the approach is very well suited for closing F&Os where (1) there was a lack of documentation, (2) specific errors were found by the peer review team, (3) potential systemic errors were identified, and (4) the peer review team itself may not have understood the licensee's method or erred in its findings. The IA teams did an excellent job of identifying the specific changes used to resolve the F&Os and confirming that the changes were properly included in the PRA models and in the documentation. However, the need for the review team to be independent (versus licensee close-out) was confirmed because the IA teams did not agree with the licensee assessment that it had resolved the issues for 20 to 25 percent of the F&Os, a result similar to differences between internal assessments versus peer reviews of the licensees' PRAs against the PRA Standard SRs.

Most maintenance F&Os can be fully resolved with documentation changes or with a more comprehensive application of the PRA methods used by the licensee. The IA teams were aware that the scope of their reviews was limited to determining if the proposed resolution resolved the issue described in the F&O. The teams would investigate whether the reported resolution had, in fact, been properly implemented in the PRA and documented. If the resolution had not addressed all of the original issues raised in the F&O, or if the documentation was incomplete, the team would assign a partially closed or open status to the F&O. The teams were less rigorous about determining if the resolution as implemented supported assigning a CC II to the SR. Instead, the IA teams relied on their experience with the SRs, referring back to the original SRs only if there was any confusion in the F&O text or on the part of the reviewers. Although this relies on the experience of the reviewers, this reliance is an integral component in

the peer review process established by the NRC and emphasizes the importance of the peer reviewers and IA team reviewers qualification requirements.

Similar to the peer review teams, the IA teams are very familiar with the different methods; with the tools and documentation used by licensees to perform the PRAs; and with the SRs in the PRA Standard. With this familiarity, the IA teams can identify which maintenance F&Os can be closed, i.e., the resolutions have fully addressed the issues raised in the F&O and the associated SR could be assigned a CC II. For F&Os that are not closed, the licensees will continue to summarize each F&O and evaluate the impact of the F&O on each application.

The NRC team noted that the IA teams were reluctant to second guess the host utility about whether a change was an upgrade. Differentiating between an upgrade and maintenance may remain a challenge. The final NRC staff expectations, and the final NEI guidance on the proposed F&O closure process states that the licensee will systematically assess each PRA change against the maintenance versus update criteria in the PRA Standard to explain why the resolution to each F&O is considered maintenance or an upgrade. The final IA team report will explain why the IA team concurs or disagrees with the licensee's evaluations. Formally documenting the decision provides confidence that any upgrade will be identified as an upgrade and that borderline upgrade/maintenance decisions will be fully explored, documented, and available for NRC review. Additional audits are anticipated to confirm consistency with this late addition to the industry guidance in Appendix X.

The NRC staff finds that acceptance of a maintenance F&O resolution by an IA team provides confidence that the F&O has been resolved and that therefore the evaluation in the PRA model after resolution is consistent with a CC II evaluation. This finding is based on the required experience of the teams, extensive licensee support and unrestricted access to documentation during the review, and the final report documenting the team's evaluation and conclusions. The NRC staff plans to audit IA team reviews and/or the final reports as needed for transparency and added confidence in application of the process.

5.0 Public Meeting Summary References

ML16082A527 – Feb. 2016 Public RISC Meeting Summary
ML16159A027 – May. 2016 Public RISC Meeting Summary
ML16251A234 – August. 2016 Public RISC Meeting Summary
ML17018A428 – Nov. 2016 Tech. Adequacy Public Meeting Summary
ML16355A051 – Dec. 2016 Public RISC Meeting Summary
ML17079A036 – Feb. 2017 Public RISC Meeting Summary