This document is a redacted publicly available version. In October 2024, the NRC staff identified information within this document that may be Critical Electric Infrastructure Information (CEII) as defined by the Federal Energy Regulatory Commission (FERC). The original file is non-public, designated as CEII, in ADAMS ML24304A840.

NRC staff actions were taken in accordance with:

- The Memorandum of Understanding Between US NRC and FERC Regarding Treatment of Critical Energy/Electric Infrastructure Information found at: https://www.nrc.gov/reading-rm/doc-collections/memo-understanding/2024/index.html.
- The FERC definition of CEII found at: https://www.ferc.gov/ceii, and, https://www.ferc.gov/enforcement-legal/ceii/designation-incoming-dam-safety-documents.

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December 20, 2006

U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

Subject: Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC
Oconee Nuclear Station, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287; Appeal of the Final Significance Determination for a White Finding and Reply to a Notice of Violation; EA-06-199

Reference 1: NRC Letter from William D. Travers to B. H. Hamilton, dated November 22, 2006; FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION (OCONEE NUCLEAR STATION - NRC INSPECTION REPORT NOS. 05000269/200617, 05000270/200617, and 05000287/200617)

Reference 2: Letter dated October 5, 2006 responding to Nuclear Regulatory Commission (NRC) Choice Letter of August 31, 2006, from Duke Power Company, LLC, d/b/a Duke Energy Carolinas, LLC (Duke)

Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC (Duke) is in receipt of the Final Significance Determination (FSD) and Notice of Violation (NOV) from the Nuclear Regulatory Commission (NRC), dated November 22, 2006, (Reference 1). This FSD and NOV involve a White Finding relative to effective control of maintenance activities associated with the Standby Shutdown Facility (SSF) at the Oconee Nuclear Station (ONS).

With this letter, Duke respectfully appeals the FSD conclusion and denies the NOV. The appeal is in accordance with NRC Inspection Manual Chapter 0609, Attachment 0609.02 "Process for Appealing NRC Characterization of Inspection Findings." Specifically, the staff's Significance Determination Process (SDP) was inconsistent with the applicable SDP guidance and lacked justification as provided in Paragraph 3(b.) of Attachment 0609.02. Primary points in support of this appeal are:

IE01

- The SDP Phase III risk analysis was performed in an overly conservative manner and failed to acknowledge key limitations of the analysis such that the results more closely represent a bounding analysis rather than an expected mean value.
- The 1999 Maintenance Rule Expert Panel evaluation of the SSF flood function was appropriately evaluated in accordance with the provisions of NUMARC 93-01 as endorsed by NRC in Regulatory Guides (RG) 1.160 and 1.182.

Nuclear safety and regulatory decision making must be based on sound information. Duke stated in the October 5, 2006, letter (Reference 2) that a contractor had been retained to re-evaluate the seismic risk component for seismically induced floods. This work has been underway since August 2006, and is scheduled for completion by December 31, 2006. It is expected that the results of this in-depth analysis will favorably alter seismic risk assessments, thus supporting Duke's overall risk conclusion of a delta-CDF less than 1E-6 based on an increase in dominance by random failure factors.

Detailed discussions supporting the basis of the appeal are contained in Attachment 1 to this letter.

The NOV states that appropriate procedural controls were not implemented to manage a passive flood protection barrier in accordance with the requirements of TS 5.4.1 and 10 CFR 50.65 (a)(4). Specifically, the NOV states that the procedure used to install temporary power cables through a small access opening failed to control the penetration through a passive flood barrier, resulting in the licensee failing to assess and manage the increase in risk associated with the degraded flood protection barrier.

Pursuant to guidance contained in the NRC Enforcement Policy and 10 CFR 2.201, Duke denies the violation based on the position that a violation of regulatory requirements did not occur. Primary points supporting denial of the violation are:

- External flooding of the SSF is not part of the Oconee Current Licensing Basis (CLB); therefore Technical Specification safety related functions are not affected.
- The subject electrical cables were routed through an access opening constructed no lower than the original predicted height of an SSF external flood event.
- The access opening does not meet the limited scope of criteria in 10 CFR 50.65 (a)(4) and therefore procedural controls of the access opening in accordance with Technical Specification 5.4.1 were not required.

Attachment 2 to this letter establishes the factual and regulatory basis for Duke's denial of the subject violation.

There are no commitments contained in this letter.

If you have any questions or require additional information, please contact Robert C. Meixell of the Oconee Regulatory Compliance Group, at (864) 885-3279.

Very truly yours,

Bruce Hamilton

Bruce H. Hamilton
Site Vice President
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Attachment 1

Oconee Nuclear Station – Units 1, 2, and 3
Docket Nos. 50-269, 50-270, 50-287
Significance Determination Process Appeal
Cornerstone: Mitigating Systems

NRC Inspection Report 05000269/200617, 05000270/200617, and 05000287/200617

Reference 1: Letter dated October 5, 2006, responding to Nuclear Regulatory Commission (NRC) Choice Letter of August 31, 2006, from Duke Power Company, LLC, d/b/a Duke Energy Carolinas, LLC (Duke)

Basis for Appeal

Pursuant to NRC Inspection Manual Chapter 0609, Attachment 0609.02, "Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal)," Paragraph 3, a licensee Final Significance Determination (FSD) appeal must fall into one of the following categories:

a. Actual (verifiable) plant hardware, procedures, or equipment configurations were not considered by the staff.
b. The staff's Significance Determination Process (SDP) was inconsistent with the applicable SDP guidance or lacked justification.

Within the framework of these two limitations, Duke submits facts that support the appeal under criterion 3b — that is, the staff's final significance determination lacked sufficient justification to support the conclusion reached. The NRC FSD letter of November 22, 2006, provided minimal insights into the reasoning and logic leading to the summary dismissal of the most crucial points made in the Reference 1. This attachment enhances and expands on those points in order to more strongly support the fact that a performance deficiency did not exist, and that the resultant increase in Core Damage Frequency (CDF) due to the access plate being removed from August 2003 through August 2005 was less than 1E-6.

The two main considerations involved in Duke's appeal are whether a performance deficiency occurred and whether the reduction of 3.5 inches (from [redacted]) in the actual external flood height that could impact the Standby Shutdown Facility (SSF) created an increase in CDF of greater than 1E-6. Impact on risk will be addressed first.

Risk Impacts

As detailed in Reference 1, the SSF is designed to maintain the reactor in a safe shutdown condition for 72 hours following 10CFR50 Appendix R, turbine building flood, sabotage, and station blackout events. Turbine building flooding results from a break in the

Condenser Circulating Water system located within the Turbine Building. Statements in the Updated Final Safety Analysis Report (UFSAR) indicate that the maximum expected water level caused by this break will be below the entrance grade level elevation into the SSF. Therefore, the SSF is unaffected by a Turbine Building Flood.

Walls to protect against external floods were not part of the original SSF structure upon completion of construction in the early 1980's. Flood walls were added to both the north and south entrances of the SSF in 1988 as a voluntary PRA enhancement relative to externally initiated flooding events. In 1983, an internal Duke study calculated a flood height of [redacted] above grade in the Oconee yard as a result of an external flood event. The results of this analysis were also intended to be a bounding value based on the best available analytical tools at that time. Both the north and south SSF flood walls were designed to this flood height [redacted], resulting in the construction of a [redacted] wall at the south end of the SSF, and a [redacted] wall at the north end of the SSF. A passage way, with a water tight flood door, is installed in the wall at the south end of the SSF. The north end of the SSF incorporates steps to traverse over the top of the [redacted] wall. The effect of these flood walls on reducing the scope of external floods that can affect the SSF is reflected in the Oconee external events PRA model.

In 1992, Duke's Hydro Generation Department (a separate division from Nuclear Generation) conducted an inundation study of Duke dams in response to the Federal Energy Regulatory Commission (FERC) Emergency Action Plan Requirement. This evaluation used conservative, worst case assumptions as it was not commissioned by, nor produced for Oconee. The primary purpose of this later study was to create flood inundation profiles to develop population evacuation plans in the unlikely event of a catastrophic dam failure. FERC methodology focuses on worst case dam failure consequences, not probability of failures. The results of this study showed that flood heights in the Oconee yard could reach a level in excess of [redacted] above grade.

The NRC stated in the FSD letter that the earlier flood study was "flawed and non-conservative" as it predicted lower maximum flood heights. However, the two studies were conducted using different methodologies for different purposes. As previously noted, the 1992 FERC-commissioned study was focused on evacuation of people living in flood affected areas while the 1983 Duke study focused on potential affects to Oconee from non-CLB generated external flooding events. It should be expected that two studies conducted for such diverse purposes would reach significantly different conclusions. As such, it is inappropriate to view the initial study as being flawed or non-conservative based solely on a comparison of the results.

Following creation of the 1992 FERC study, the Duke Probabilistic Risk Assessment (PRA) group investigated the differences between the FERC study results and the results from the 1983 study. The FERC study used different computer models with many different input assumptions. Duke concluded that the results of both studies provided important, relevant

information and should be considered in the PRA model. A qualitative evaluation of the differences resulted in an engineering judgment that 80% of external floods would not fail the SSF due to the flood wall. The percentage of external floods that were assumed to overtop the wall and fail the SSF was 20%.

Since the 80/20 percent split was a qualitative result, it is Duke's position that the difference between [redacted] and [redacted] is indistinguishable relative to the assumed 80/20 split fraction. The NRC staff's application of linear interpolation of a 3.5 inches difference in wall height implies a state of knowledge of the flood height distribution that simply does not exist. Application of this interpolation would conservatively result in a 7.25% increase in floods that would impact the SSF. The NRC linear interpolation assumption that 7.25% of external floods will produce Oconee yard elevations in the precise 3.5 inch band between [redacted] to [redacted] lacks justification and is an unreasonable assumption. The PRA model for external flooding at Oconee is adequate for the original purpose of determining the presence or absence of a severe accident vulnerability, but is not precise enough to distinguish an incremental CDF value at an SDP threshold of 1E-06 for a reduction in the wall height of only 3.5 inches.

The NRC stated in the FSD letter that removal of the access cover would "directly impact the accredited effectiveness" of the flood wall. This statement is incorrect. It was clearly established in Reference 1 that the accredited effectiveness of the flood wall is [redacted]. This is the same elevation as the bottom of the access opening in question. The FERC-commissioned study performed in 1992 was addressed by PRA revisions as noted earlier, but the results of that study appropriately did not affect the accredited effectiveness of the existing flood walls.

Relative to the seismic evaluation, the NRC staff stated that Duke provided no new information to support a revision to the seismic fragility term. Duke did in fact provide new information for NRC consideration in revising the fragility term. In Reference 1, Duke provided information showing an increase in seismic capacity of about 12% would reduce seismic delta CDF by about 60%, and an increase in seismic capacity of about 33% would reduce seismic delta CDF by about a factor of 5. Duke also communicated that significant conservatisms are contained in the seismic capacity factor used to calculate the base case delta-CDF of 5E-7. This conclusion was reached by recognized industry experts in seismic PRA who participated in a Duke seismic risk review. This information supports the qualitative judgment that when seismic delta CDF is appropriately reduced (by eliminating unnecessary conservatisms), the overall risk will be dominated by random failures and the delta CDF of 1.2E-6 reported in Reference 1 would clearly be reduced to less than 1E-06.

The NRC agreed with Duke that a qualitative assessment of risk should also be considered, given the inherent uncertainty associated with the external event risk analysis. The NRC stated in the FSD other attributes were considered in the risk analysis that have bearing on safety significance (defense in depth, ability to protect the public). Duke also agrees that

these attributes included in the NRC discussion are and have always been aspects of the subject initiating event scenario. However, absent from the NRC assessment is an acknowledgement that the removal of this small plate does not in any way alter the initiating event frequency, nor adversely impact the event consequences in any measurable degree. The FSD stated that any functional degradation of the SSF flood barrier directly increases the SSF failure probability for this initiating event. However, this statement fails to acknowledge that removal of the small plate is within the accuracy level of the aforementioned qualitative risk assessments. Therefore, its removal has no measurable increase in SSF failure probability.

NRC further stated in the FSD that the emergency plan response would be impaired as a result of the access cover being removed. For an external flooding event, significant time exists for diagnosis and initiation of emergency response. Existing Emergency Action Plans incorporate steps for notification of Oconee personnel, who would have ample time to man the SSF and initiate emergency response actions per station procedures. As previously established, the access cover location would only eliminate an impact for flood heights in the precise 3.5 inch band between [redacted] and [redacted] -- which is not a meaningful difference. In any event, however, for the 20% of external floods that could potentially overtop the flood wall and affect the SSF -- regardless of whether the wall is credited at [redacted] or [redacted] removal of the small access cover is inconsequential relative to impairment of the emergency plan response.

As discussed above, the NRC SDP Phase III risk analysis is overly conservative. Assumptions regarding percentage of floods occurring in the 3.5 inch band between the bottom of the access opening and top of the 5 foot wall lack justification and are unreasonable. In addition, conservatisms in the base seismic capacity resulting in delta CDF of 5E-07 were not appropriately incorporated into the staff's risk analysis. This results in the Phase III analysis producing a bounding risk value rather than an expected mean risk.

Maintenance Rule Safety Significance

In the FSD, the NRC staff identified a performance deficiency and stated that Duke failed to assess and manage the increase in risk associated with the "degradation of the flood protection capability of the SSF's exterior wall from August 13, 2003 to August 3, 2005." However, the staff's determination that the expert panel's risk evaluation should have concluded that this small opening was high safety significant, and therefore within the scope 10CFR 50.65(a)(4), is incorrect. The Maintenance Rule guidelines are contained in NUMARC 93-01 and endorsed by the NRC in RG 1.160 and 1.182. NUMARC 93-01 sets forth specific criteria for determining whether a Structure, System, or Component (SSC) is high safety significant. An evaluation against these criteria as discussed below, support the Duke conclusion that a performance deficiency does not exist.

The Maintenance Rule program follows the process described in Section 9.3.1 of NUMARC 93-01 in which high safety significant SSCs are identified using plant specific PRA insights with the review and concurrence of the expert panel. This guidance specifies the use of three risk importance calculational methods for determining risk. These are:

1. Risk Reduction Worth (RRW)
   Duke uses "Method B" found in Section 9.3.1.1 of NUMARC 93-01.
   Use the RRW directly and report all systems with a RRW 1.005 or greater (i.e., a reduction in CDF of 0.5 percent or more).

2. Risk Achievement Worth (RAW)
   Report all systems that have a RAW of 2.0 or greater (i.e., at least a doubling of CDF).

3. Core Damage Frequency Contribution
   Report systems that appear in the top 90 percent of cut sets contributing to CDF.

It is important to note that in the established Duke evaluation process, seismic core damage sequences are categorically excluded. Training material from NUMARC Maintenance Rule workshops (prior to MR implementation) indicated that the analysts should look for potential shadowing of important systems as the result of very large single contributors to CDF. For Oconee, seismic events make up approximately half the core damage frequency. Therefore, seismic initiated core melt sequences are not included in the cut set file used for importance ranking to prevent "masking." For most plant SSCs, this is particularly appropriate because seismic risk is not considered to be very sensitive to equipment availability and reliability. For the access cover, it would be appropriate to consider seismic events because of the potential for seismically induced flooding; however, this is not expected to change the conclusion. Further, the expert panel is obligated to consider the limitations of the PRA (e.g., the conservatism of the fragility estimates) and other factors in its final decision.

The PRA evaluation of this SSC requires developing an accident sequence analysis or cut set evaluation. However, it is important to recognize that the expected (nominal) unavailability value should be used in the evaluation of the RRW and cut set criteria. Only for the RAW criteria is the SSC's unavailability set to 1.0.

If this SSC is evaluated strictly as a passive civil feature, then the expected unavailability is negligible and thus the risk significance would be very low. Duke's investigation of this matter found that there are no routine tests or maintenance activities that use this access cover. However, the researchable history of the panel indicates that it has been used on one other occasion for temporary cables in support of modifications to the SSF. For a baseline

PRA evaluation, a reasonable assumption for the expected unavailability would be to assume only a few weeks for each occurrence, as was the case in 1992. Further, it should be acknowledged that the SSF systems were unavailable for a significant portion of the time the access cover was open in 1992, hence the need for temporary power and the open access cover. Considering this fact reduces the unavailability that is attributable to the access cover for external flood mitigation.

In view of these factors, Duke's position is that with the use of a realistic estimate of the unavailability of the access cover, the RRW is less than the NUMARC criterion of 1.005, and the cut set ranking is below the 90% cut off.

The criterion with the most relevance to finding an SSC in a failed state is the risk achievement worth (RAW). However, in order to meet the NUMARC criterion of RAW $\geq$ 2, the incremental risk posed by the access cover would have to be at least equal to the current baseline CDF of 8.2E-05 /yr. Clearly, as demonstrated by the conservative (and disputed) analysis reported in FSD, the RAW for this SSC is much less than 2.

The final part of a proper Maintenance Rule significance determination is for the expert panel to review the PRA results for the SSC. The purpose of this review is to consider the limitations of the PRA and other qualitative factors that may affect safety significance. The expert panel has the authority to override the PRA criteria results based on its qualitative judgment of these factors. Thus, in this case, the expert panel can consider the limitations of the external flooding analysis and the conservatism believed to exist in the previous seismic fragility estimates. During the July 15, 1999, Maintenance Rule Expert Panel meeting, Function 8094.3, "Provide a flood protection barrier (external flooding event)" for the SSF was reviewed. This review focused on the personnel access door, and the panel determined that this function should remain a low risk significant function. Operations personnel routinely access the SSF through this door, and any functional degradation would be obvious. The access opening was not specifically addressed during this meeting, but the appropriate conclusion was reached regarding a Low Safety Significance classification for the SSF flood barrier function.

In summary, the staff's conclusion that the expert panel should have deemed this small opening as high safety significant is not justified. This conclusion failed to consider the significance of the SSC in accordance with the approved guidelines in Section 9.3.1 of NUMARC 93-01. Duke did conservatively reclassify function 8094.3 to High Safety Significance during the October 5, 2005, Maintenance Rule Expert Panel Meeting. However, Duke's position is that the SSC in question does not meet any of these quantitative criteria for high safety significance and that the expert panel would be within its discretion to reduce the significance level by considering qualitative factors such as those discussed in Reference 1. The above discussion provides justification that the access cover is not high safety significant, this SSC is not within the scope of 10CFR 50.65(a)(4), and a performance deficiency did not exist.

Conclusion

Removal of the subject access plate was not a performance deficiency, and it did not result in an increase of CDF greater than 1E-06. This is based on the following:

- External flooding events are beyond the SSF CLB.

- Flood walls built around the SSF entrances in 1988 were designed for a flood height of [redacted]. At no time was the ability to mitigate a [redacted] external flood lost or compromised.

- The 3.5 inch difference in wall height is indistinguishable relative to the qualitative basis for the 80/20 split fraction assumed in the PRA for external floods.

- The NRC staff's linear interpolation assumption for external floods having a maximum height in the 3.5 inch band between bottom of access opening and top of the north wall lacks justification, and is inconsistent with the qualitative basis of the 80/20 split fraction.

- Seismic capacity values assumed in the external event PRA are conservative. Only small changes in these capacity values are required to produce overall delta CDF values below 1E-06. Significant conservatisms exist per the judgment of seismic experts, which support the qualitative judgment that a more realistic seismic delta CDF is clearly low enough to result in overall delta CDF less than 1E-06. The NRC failed to fully consider this information in their SDP evaluation.

- A seismic expert was contracted to calculate a more realistic fragility, and final results are expected by 12/31/06. These results are expected to favorably alter seismic risk assessments.

- The NRC staff did not justify the conclusion that the access cover was high safety significant using the approved guidelines provided in Section 9.3.1 of NUMARC 93-01. Duke does not believe that any of these criteria are met for high safety significance. In addition, the Oconee expert panel is required to consider the limitations of the PRA analysis and other appropriate qualitative factors, and has the discretion to override quantitative results when justified.

- Lacking appropriate justification that the access cover is high safety significant, this SSC is not within the scope of 10CFR 50.65(a)(4) and a performance deficiency did not exist.

Attachment 2

Oconee Nuclear Station – Units 1, 2, and 3
Docket Nos. 50-269, 50-270, 50-287
Denial of Notice of Violation

VIO 05000269, 270, 287/200617-01, White Finding – Inadequate Procedural Controls and Risk Management Associated with Breach in SSF Flood Protection Barrier

Reference 1: Letter dated October 5, 2006, responding to Nuclear Regulatory Commission (NRC) Choice Letter of August 31, 2006, from Duke Power Company, LLC, d/b/a Duke Energy Carolinas, LLC (Duke)

Restatement of Violation

During an NRC inspection completed on August 31, 2006, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> Technical Specification 5.4.1 requires that written procedures shall be established implemented and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 9, Procedures for Performing Maintenance, requires that maintenance which can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.
>
> 10 CFR 50.65 (a)(4), "Requirements for monitoring the Effectiveness of Maintenance at Nuclear Power Plants" requires in part, that prior to performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities.
>
> Contrary to the above, on August 13, 2003, while performing planned maintenance involving the opening of a penetration in the Standby Shutdown Facility (SSF) exterior wall to route temporary electrical power cables, the licensee failed to use an adequate procedure to open and control a penetration through a passive flood protection barrier and route temporary power cables. Specifically, the procedure used, IP/O/A/3010/006, Cable Pulling Procedure, Revision 16, did not address breaching and restoring a flood barrier. As a result, the licensee failed to assess and manage the increase in risk associated

with the degradation of the flood protection capability of the SSF's exterior wall from August 13, 2003, to August 3, 2005.

This violation is associated with a White significance determination process finding for Units 1, 2, and 3 in the Mitigating Systems cornerstone.

Admission or Denial

Duke denies the violation.

Basis for Disputing Violation

Background

This violation is associated with a White Finding in the Oconee Mitigating Systems Cornerstone identified in the aforementioned inspection report. Duke disputes the existence of a performance deficiency as discussed in Attachment 1, and the resulting violation of NRC regulations. The basis for the denial is discussed below.

A penetration is provided on the South end of the SSF to allow access to permanent CO_2 storage tank fill connections. This penetration is formed from heavy steel plate and is sealed both to the SSF concrete walls and the two CO_2 fill pipes for external flood protection purposes. An approximately 4.5 inch by 7.25 inch access opening is located in this existing penetration. This access opening was added in March 1992 via a Variation Notice (VN) to support activities associated with Nuclear Station Modification (NSM) 52792. This NSM required the use of temporary power and compressed air lines from external sources, and the access opening was added to allow passage into the SSF proper without opening a large door, and thereby requiring continuous posting of a security officer. Once the NSM-related work was completed later in 1992, the access opening was sealed with a 1/4 inch thick plate over a gasket held in place with 4 bolts.

On August 13, 2003, electrical cables were routed though the access opening to support modification work related to increasing the capacity of the Pressurizer heaters. These cables remained in place until August 3, 2005. As discussed in Reference 1, the bottom of this opening is at [redacted] above surrounding grade. This is the same elevation as the predicted external flood height from the 1983 Duke study, which led to the construction of flood walls around both the North and South entrances into the SSF in 1988 as a PRA enhancement.

The Maintenance Rule Expert Panel (Panel) met July 15, 1999, and among other topics, reviewed Function 8094.3, "Provide a flood protection barrier (external flooding event)" for the SSF. During their review, focus was on the personnel access door which had been experiencing minor problems with the manual locking cams. The Panel recommended that

the flood barrier remain a low risk significant function given the obvious nature of the door condition due to routine usage by Operations personnel. The small access panel was not specifically addressed at this meeting. However, the appropriate conclusion is that the cover merits a Low Safety Significance classification.

Maintenance Rule Safety Significance

In the NOV, the NRC staff stated that Duke violated the requirements of Technical Specification 5.4.1 and 10CFR 50.65(a)(4) by failing to use appropriate procedural controls to breach and restore a passive flood barrier, as well as to assess and manage the increase in risk associated with the degraded flood protection barrier. Inherent to this violation is the assumption that the access plate is within the scope of 10CFR 50.65(a)(4). The NRC staff's determination that the expert panel's risk evaluation should have concluded that this small opening was high safety significant, and therefore within the scope 10CFR 50.65(a)(4), is incorrect. Maintenance Rule guidelines are contained in NUMARC 93-01 and endorsed by the NRC in RG 1.160 and 1.182. NUMARC 93-01 sets forth specific criteria for determining whether a Structure, System, or Component (SSC) is high safety significant. An evaluation against these criteria, discussed below, clearly demonstrates compliance.

The Maintenance Rule program follows the process described in Section 9.3.1 of NUMARC 93-01 in which high safety significant SSCs are identified using plant specific PRA insights with the review and concurrence of the expert panel. This guidance specifies the use of three risk importance calculational methods for determining risk. These are:

1. Risk Reduction Worth (RRW)
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   Report systems that appear in the top 90 percent of cut sets contributing to CDF.

It is important to note that in the established Duke evaluation process, seismic core damage sequences are categorically excluded. Training material from NUMARC Maintenance Rule workshops (prior to MR implementation) indicated that the analysts should look for potential shadowing of important systems as the result of very large single contributors to CDF. For Oconee, seismic events make up approximately half the core damage frequency.

Therefore, seismic initiated core melt sequences are not included in the cut set file used for importance ranking to prevent "masking." For most plant SSCs, this is particularly appropriate because seismic risk is not considered to be very sensitive to equipment availability and reliability. For the access cover, it would be appropriate to consider seismic events because of the potential for seismically induced flooding; however, this is not expected to change the conclusion. Further, the expert panel is obligated to consider the limitations of the PRA (e.g., the conservatism of the fragility estimates) and other factors in its final decision.

The PRA evaluation of this SSC requires developing an accident sequence analysis or cut set evaluation. However, it is important to recognize that the expected (nominal) unavailability value should be used in the evaluation of the RRW and cut set criteria. Only for the RAW criteria is the SSC's unavailability set to 1.0.

If this SSC is evaluated strictly as a passive civil feature then the expected unavailability is negligible and thus the risk significance would be very low. Duke's investigation of this matter found that there are no routine tests or maintenance activities that use this access cover. However, the researchable history of the panel (provided in the Background section) indicates that it has been used on one other occasion for temporary cables in support of modifications to the SSF. For a baseline PRA evaluation, a reasonable assumption for the expected unavailability would be to assume only a few weeks for each occurrence, as was the case in 1992. Further, it should be acknowledged that the SSF systems were unavailable for a significant portion of the time the access cover was open in 1992, hence the need for temporary power. Considering this fact reduces the unavailability that is attributable to the access cover for external flood mitigation.

In view of these factors, Duke's position is that with the use of a realistic estimate of the unavailability of the access cover, the RRW is less than the NUMARC criterion of 1.005, and the cut set ranking is below the 90% cut off.

The criterion with the most relevance to finding an SSC in a failed state is the risk achievement worth (RAW). However, in order to meet the NUMARC criterion of RAW $\geq$ 2, the incremental risk posed by the access cover would have to be at least equal to the current baseline CDF of 8.2E-05 /yr. Clearly, as demonstrated by the conservative (and disputed) analysis reported in FSD, the RAW for this SSC is much less than 2.

The final part of a proper Maintenance Rule significance determination is for the expert panel to review the PRA results for the SSC. The purpose of this review is to consider the limitations of the PRA and other qualitative factors that may affect safety significance. The expert panel has the authority to override the PRA criteria results based on its qualitative judgment of these factor. Thus, in this case, the expert panel can consider the limitations of the external flooding analysis and the conservatism believed to exist in the previous seismic fragility estimates.

In summary, the staff's conclusion that the expert panel should have deemed this small opening was high safety significant is not justified. This conclusion failed to consider the significance of the SSC in accordance with the approved guidelines in Section 9.3.1 of NUMARC 93-01. Duke did conservatively reclassify function 8094.3 to High Safety Significance during the October 5, 2005, Maintenance Rule Expert Panel Meeting. However, Duke's position is that the SSC in question does not meet any of these quantitative criteria for high safety significance and that the expert panel would be within its discretion to reduce the significance level by considering qualitative factors such as those discussed in Reference 1. The above discussion provides justification that the access cover is not high safety significant, and this SSC is not within the scope of 10CFR 50.65(a)(4).

Because external flooding of the SSF is not part of the Oconee CLB, the safety related functions of the SSF were not affected. Therefore a violation of Technical Specification 5.4.1 and 10CFR 50.65(a)(4) requirements did not occur.

Corrective Steps Taken and Results Achieved

Enhancements were implemented as a result of this event. The temporary power cables were removed and the access cover re-installed with a gasket and secured with 4 bolts. Additionally, prominent signage was added to inform individuals of the importance of maintaining the access cover in place as part of the SSF flood protection system. Since this event, the access cover has remained in place.

Date of Full Compliance

Leaving the access cover open did not create a noncompliance, since it is located no lower than [redacted]. Duke has been and remains in full compliance.