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~~SECURITY RELATED INFORMATION - WITHHOLD UNDER 10 CFR 2.390~~
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10 CFR 50.90

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

R.E. Ginna Nuclear Power Plant
Renewed Facility Operating License No. DPR-18
NRC Docket No. 50-244

Subject: License Amendment Request - Revised Commitment Associated with
Implementation of NFPA 805, 2001 Edition

- References:
1. Render, Diane, U.S. Nuclear Regulatory Commission, letter to Hanson, Bryan, Exelon Generation Company, LLC, "R.E. Ginna Nuclear Power Plant - Issuance of Amendment Regarding Transition to a Risk-Informed, Performance-Based Fire Protection Program in accordance with Title 10 of the Code of Federal Regulations Section 50.48(c) (CAC No. MF1393)," dated November 23, 2015 (ADAMS Accession No. ML15271A101).
 2. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated August 7, 2015.
 3. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated June 11, 2015.
 4. Pacher, Joseph, E., Constellation Energy Nuclear Group, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Docket No. 50-244, License Amendment Request Pursuant to 10 CFR 50.90: Adoption of NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)," dated March 28, 2013 (ADAMS Accession No. ML13093A064).

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests a change to the commitments associated with the implementation of items listed in Attachment S of Reference 3. Specifically, the commitment to install overcurrent protection (modification

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ESR-12-0141) is no longer required in the modification scope. This commitment was approved in the U.S. Nuclear Regulatory Commission Safety Evaluation Report (Reference 1). The original purpose of the overcurrent protection modifications was to reduce fire risk by protecting the emergency diesel generators (EDGs) from fire-induced overcurrent events allowing local recovery of the EDGs. The overcurrent protection modification was not used to remove a variance from the deterministic requirement (VFDR) from the delta risk calculation. During a fire, the locally recovered EDGs could be used to provide power for decay heat removal, reactivity and inventory control, and vital auxiliaries (vital battery chargers, long-term indication and control power, and breaker control). Alternative means to provide these functions will be provided by implementation of modifications discussed in Table S-2 of Attachment S to this License Amendment Request.

Furthermore, this proposed amendment would modify Attachment C – NEI 04-02 Table B-3 Fire Area Transition; Attachment G – Recovery Actions Transition; Attachment S – Modifications and Implementation Items; and Attachment W - Fire PRA Insights, submitted with Reference 3. This proposed amendment would also modify Attachment M – License Condition Changes, submitted with the Reference 2 response to a request for additional information. The changes to these documents reflect detailed changes to mitigation strategies, changes in nomenclature, and the elimination of the modification described in Reference 3, Table S-2, Item 6, ESR-12-0141, "Provide overcurrent protection for both emergency diesel generators (DGs) in case of a fire outside the diesel generator rooms." Following the completion of the remaining modifications and procedure changes, performance criteria described in Section 1.5.1 of NFPA 805 will be met.

The proposed change has been reviewed by the R.E. Ginna Nuclear Power Plant (Ginna) Plant Operations Review Committee in accordance with the requirements of the EGC Quality Assurance Program.

EGC requests approval of the proposed amendment by September 1, 2018, in order to support the Ginna Fall outage. Once approved, this amendment shall be implemented within 60 days. The commitments contained in the "Summary of Regulatory Commitments" in the Reference 3 letter remain the same; however, Attachment S has been modified.

Enclosure 1 contains the summary of the proposed changes.

Enclosure 2 contains "Attachment M (Revised) - License Condition Changes" (non-security related information).

Enclosure 3 contains "Security-Related Information - Withhold under 10 CFR 2.390." Therefore, EGC requests that this information be withheld from public disclosure in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Enclosure 3 contains the following:

Attachment C (Revised) - NEI 04-02 Table B-3 Fire Area Transition
Attachment G (Revised) - Recovery Actions Transition
Attachment S (Revised) - Modifications and Implementation Items
Attachment W (Revised) - Fire PRA Insights

ESR-12-0141, "Provide overcurrent protection for both emergency diesel generators (DGs) in case of a fire outside the diesel generator rooms," would have required a technical specification change to implement. With the removal of the overcurrent modification, No Technical Specification changes are required.

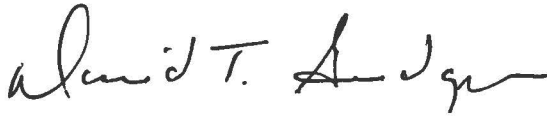
The proposed amendment is risk-informed and follows the guidance in Regulatory Guide 1.174, Revision 2. Ginna performed a plant-specific evaluation to assess the risk impact of the proposed amendment. The results and insights of this plant-specific evaluation are reflected in the revised Attachment W.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of New York of this application for license amendment by transmitting a copy of this letter and the appropriate attachments to the designated State Official.

Should you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of June 2017.

Respectfully,



David T. Gudger
Manager - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosure 1 - Summary of the Proposed Changes
Enclosure 2 - Attachment M (Revised) - License Condition Changes
Enclosure 3 - SECURITY RELATED INFORMATION - WITHHOLD UNDER 10 CFR 2.390
Attachment C (Revised) - NEI 04-02 Table B-3, Fire Area Transition
Attachment G (Revised) - Recovery Actions Transition
Attachment S (Revised) - Modifications and Implementation Items
Attachment W (Revised) - Fire PRA Insights

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, Ginna
USNRC Senior Project Manager, Ginna
A. L. Peterson, NYSERDA

Enclosure 1
Summary of Proposed Changes

Subject: Revised Commitment Associated with Implementation of NFPA 805, 2001 Edition

1.0 SUMMARY DESCRIPTION

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Summary of Proposed Changes

1.0 SUMMARY DESCRIPTION

This evaluation supports a License Amendment Request (LAR) to amend Renewed Facility Operating License No. DPR-18 for the R.E. Ginna Nuclear Power Plant (Ginna), operated by Exelon Generation Company, LLC (EGC).

Amendment No. 119 (Reference 1) to Renewed Operating License No. DPR-18 implemented Ginna's transition to a risk-informed, performance-based fire protection program based on National Fire Protection Association (NFPA) 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition" (NFPA 805), in accordance with 10 CFR 50.48(c). As part of the Transition License Conditions included in Amendment No. 119, Ginna committed to implement the plant modifications listed in Table S-2 of Ginna letter dated March 28, 2013, Enclosure 1 (Reference 18). Those commitments were superseded by Ginna letter dated June 11, 2015, "Response to Request for Additional Information" (Reference 5). Also, by letter dated August 7, 2015, Ginna submitted a supplement to the March 28, 2013 LAR, providing revised Attachment M, "License Condition Changes" and revised Attachment N, "Technical Specification Changes" (Reference 2). These revised attachments were reviewed and approved by the NRC by letter dated November 23, 2015 (Reference 1).

This change does not alter any other commitment as approved in Amendment No. 119 (Reference 1).

Further consideration of committed modifications has resulted in the conclusion that the modification to install overcurrent protection, Engineering Service Request (ESR) 12-0141 (i.e., modification), is no longer required in the NFPA 805 project modification scope. The original purpose of the overcurrent protection modifications was to reduce fire risk by protecting the emergency diesel generators (EDGs) from fire-induced overcurrent events allowing local recovery of the EDGs. The overcurrent protection modification was not used to remove a variance from the deterministic requirement (VFDR) from the delta risk calculation. During a fire, the locally recovered EDGs could be used to provide power for decay heat removal, reactivity and inventory control, and vital auxiliaries (vital battery chargers, long-term indication and control power, and breaker control).

Local recovery of the EDG functions entails the following steps:

- 1) Ensure EDG output breakers are open from the control room;
- 2) Remove direct current control power fuses for the breakers locally at both the screen house and auxiliary building 480 VAC vital buses;
- 3) Locally trip all supply, bus tie, and load breakers;
- 4) Reset EDG from Control Room, if required;
- 5) Place local/remote switch to local in the diesel generator room;
- 6) Locally start the EDG;
- 7) Locally close breaker from EDG to energize vital bus;
- 8) Locally close breakers on the screen house and auxiliary building 480 VAC vital buses to energize individual loads.

These functions can now be provided by other credited options in the event the EDGs are failed due to overcurrent:

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- Power to the vital battery chargers can be provided initially through the Technical Support Center (TSC) batteries, and later as supported by the TSC diesel generator (KED02).
- Power to the vital battery chargers can be provided through the existing plant motor control centers (MCCs) using the 1000kW diesel generator's KDG08 or KDG09 installed under ESRs 11-0050 and 12-0143.
- Power to the vital battery chargers can be provided from the 100kW Flex diesel generator (KBD01A), connecting cables from the 100kW diesel generator staged outside the TSC through the TSC and Turbine Building, directly to the vital battery chargers in the battery rooms.
- Diesel generator's KDG08 or KDG09 can provide long term decay heat removal by powering the Standby Auxiliary Feedwater (SAFW) pumps (ESRs 11-0050 and 12-0143). These diesel generators can also provide Reactor Coolant System (RCS) reactivity and inventory control by powering the alternate RCS injection pump (PCH02) (ESRs 12-0143 and 12-0144).

2.0 DETAILED DESCRIPTION

The following discussion provides the original basis for the committed diesel generator overcurrent protection modification, as well as the alternative methods being provided to justify the proposed change of the commitment.

2.1 Operation of the Emergency Diesel Generator prior to the overcurrent modification

Ginna has two redundant, onsite emergency safety-related AC power systems, designated as Train A and B. Each train consists of the complement of safety-related equipment needed to achieve safe plant shutdown and/or to mitigate the consequences of a design basis accident scenario. Each train is supplied by an EDG. The Ginna EDGs consist of an ALCO model 16-251-F engine coupled to a Westinghouse 1950 kW (continuous rating) generator. Each EDG powers two 480V Class 1E buses (EDG A powers Bus 14 and Bus 18, EDG B powers Bus 16 and Bus 17).

Each EDG is controlled by relay logic such that it is capable of automatic start-up and emergency loading when required. Additional relay logic is provided to unload and shut down the EDG when damaging abnormal conditions are detected.

The protective trips and conditions that render the EDGs incapable of responding to an automatic start signal are the following:

- Low lube-oil pressure (40 psig; two out of three logic)
- Overcrank
- Reverse power (if safety injection (SI) signal is not present)
- Overcurrent (if SI signal is not present)
- Overspeed
- Control switch in PULL-STOP
- Local/remote switch in LOCAL

The EDG trips listed above secure fuel to the engine and simultaneously open both output breakers (EG1A1 and EG1A2 for EDG A, and EG1B1 and EG1B2 for EDG B) powered by the

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affected EDG. Additionally, both output breakers are automatically opened without securing fuel if the excitation system permissive jacket water pressure switch detects engine shutdown.

In addition to the EDG breaker trips described above, each supply breaker in the Class 1E 480V system is also provided with overcurrent protection using Amptector (or equivalent) solid state protective relays. The Amptectors are set to provide overcurrent protection based on the loading associated with individual buses. Overload conditions are not intended to be rapidly cleared by the Amptector devices.

The voltage-restrained overcurrent devices are intended to clear faults not cleared by breaker overcurrent protection. The settings provide backup protection for Amptector devices associated with each supply breaker and provide the primary means of protection for faults internal to the EDG buswork and interconnecting cable. The settings are appropriate to clear overload conditions before generator thermal ratings are exceeded.

When a real or spurious SI signal is generated, the EDG voltage-restrained overcurrent protection is disabled. If multiple motors are started simultaneously or SI loading commences without first stripping the Class 1E buses of running loads, the EDG could be damaged. Fire locations have been identified that are capable of causing a spurious SI signal and simultaneously starting or failing to strip loading in excess of generator ratings. The same fire locations may also short breaker control power, disabling remote operator manipulation of the EDG output breakers as well as automatic protective actions that rely on control power.

To prevent EDG damage for this narrow range of circumstances, the generator output must be limited to within thermal ratings for all possible conditions, either by preventing the overload condition or automatically interrupting the overload condition after it is detected.

2.2 Changes to EDG Trip Functionality due to Overcurrent Modification

Instead of the overcurrent trip being disabled by an SI signal per the present design, the proposed design would have had a two-out-of-two overcurrent sensor signal actuating to trip the EDGs. This would have required two-of-two overcurrent sensors to actuate to trip the EDGs. This would allow local recovery of the EDGs that would have otherwise been damaged by a fire-induced overcurrent with a SI signal.

2.3 Risk and Defense-in-Depth Maintained with the Removal of 2-of-2 Overcurrent on SI

An integrated review of NFPA 805 plant modifications, evaluated in concert with modifications installed to meet NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," was conducted. It was shown that alternate means of maintaining adequate delta risks and levels of defense-in-depth exists by providing the key EDG functions through other means:

- Power to the vital battery chargers can be provided initially through the TSC batteries, and later as supported by the TSC diesel generator (KED02).
- Power to the vital battery chargers can be provided through the existing plant MCCs using the 1000kW diesel generator's KDG08 or KDG09 installed under ESRs 11-0050 and 12-0143.
- Power to the vital battery chargers can be provided from the 100kW Flex diesel generator (KBD01A), connecting cables from the 100kW diesel generator staged outside

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the TSC through the TSC and Turbine Building, directly to the vital battery chargers in the battery rooms.

- Diesel generator's KDG08 or KDG09 can provide long term decay heat removal by powering the SAFW pumps (ESRs 11-0050 and 12-0143). These diesel generators can also provide RCS reactivity and inventory control by powering the alternate RCS injection pump (PCH02) (ESRs 12-0143 and 12-0144).

The use of these alternative means of providing the functions for which the EDGs were originally credited eliminates the need to provide overcurrent protection for the EDGs.

3.0 TECHNICAL EVALUATION

3.1 Background – System Description

The Ginna 480 VAC Emergency Power System consists of two separate trains, each with its own diesel generator and electrical distribution system. In the event of a fire, the EDGs are each capable of providing power to all necessary mitigation equipment used for decay heat removal, RCS inventory and reactivity control, as well as providing power to the battery chargers, long term indication and control power, and breaker control.

A detailed review of proposed NFPA 805 modifications, integrated with modifications installed to support NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," indicated that several alternative means will be made available to provide the power for decay heat removal, RCS inventory and reactivity control, and vital auxiliaries functions (see July 14, 2016 NRC Safety Evaluation Report (ML16124A038)). These alternate means are listed in Section 2.

3.2 Summary

The overcurrent protection modifications were credited for fire risk reduction in Attachments C (NEI 04-02, Table B-3, Fire Area Transition) and G (Recovery Actions Transition), as submitted in Reference 5. Instead of these attachments describing overcurrent protection, the methods of achieving a comparable risk reduction using alternate methods are now described, as provided with this submittal. Attachment S (Modifications and Implementation Items) is also revised to reflect the removal of the overcurrent modifications and the refinement of the remaining modifications. As these changes affect the delta risk calculations, Attachment W (Fire PRA Insights) is updated as well. Revised Attachments C, G, S, and W are attached to this submittal (Enclosure 3) to show the removal of the overcurrent modifications and the revised delta risk calculations.

3.3 Changes to PRA Models and Explanation of Changes

The following are changes that have been made:

- a. The ignition frequency and non-suppression data have been incorporated consistent with NUREG-2169 (Reference 22). This NUREG resulted in a large increase in main control board fires and a 30% increase in electrical cabinet fires.
- b. The heat release rates have been incorporated consistent with NUREG-2178 (Reference 23). The data in NUREG-2178 (Reference 23) offsets the risk increase associated with electrical cabinets.

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- c. The use of Appendix L to NUREG/CR-6850 (Reference 24) to evaluate the main control board risk increases has been incorporated. This method offsets the risk increases associated with NUREG-2169 (Reference 22) for the main control board. Although Appendix L is an approved method, this is a new method for Ginna. A focused scope peer review was completed in September 2016 on this method with no findings.

The combination of all the proposed modifications and data updates reduces the overall calculated delta risk relative to the previously submitted information even with the removal of the fire-induced overcurrent modifications. The net Core Damage Frequency (CDF) delta risk including the internal events offset is $4\text{E-}6$. The net Large Early Release Frequency (LERF) delta risk including the internal events offset is less than $1\text{E-}7$.

Other changes to the PRA model were previously discussed in Attachment 3 to Ginna's August 7, 2015 response, "PRA RAI 44.02b" (Reference 2).

3.4 Safety Margin

In accordance with NEI 04-02, 5.3.5.3 guidance (Reference 20), safety margins are considered to be maintained if codes and standards or their alternatives accepted for use by the NRC are met, and safety analyses acceptance criteria in the licensing basis (e.g., FSAR, supporting analyses) are met, or provide sufficient margin to account for analysis and data uncertainty.

Fire PRA and Deterministic Analysis methodologies and modeling approaches used to support the conclusions contained in this evaluation are unchanged from those used to support the approved Safety Evaluation for the Ginna implementation of NFPA 805 as documented in NRC letter dated November 23, 2015 (Reference 1). The Safety Evaluation includes consideration of RAI responses associated with the NFPA 805 LAR (Reference 18).

The following summarizes the bases for ensuring the maintenance of safety margins:

- The risk-informed, performance-based processes utilized are based upon NFPA 805, 2001 Edition, endorsed by the NRC in 10 CFR 50.48(c).
- The fire risk evaluation process is in accordance with NEI 04-02, Revision 2, which is endorsed by the NRC in Regulatory Guide 1.205, Revision 1 (Reference 19).
- The Fire PRA is developed with NUREG/CR-6850 (Reference 24), which was developed jointly between the NRC and EPRI.
- The Ginna fire PRA is built upon the internal events model, which has undergone several peer reviews and self-assessments.
- Fire protection systems and features determined to be required by NFPA 805 Chapter 4 have been confirmed to meet the requirements of NFPA 805 Chapter 3 and their associated referenced codes and listings, or provided with acceptable alternatives using processes accepted for use by the NRC (e.g., FAQs).

In consideration of this discussion, it is concluded that adequate safety margin continues to be maintained.

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3.5 Defense-in-Depth

In accordance with the NEI 04-02, 5.3.5.2 guidance (Reference 20), defense-in-depth is considered to be maintained if the proposed change does not result in a substantial imbalance in:

- Preventing fires from starting.
- Detecting fires quickly and extinguishing those that occur, thereby limiting damage.
- Providing adequate level of fire protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished will not prevent essential plant safety functions from being performed.

The changes proposed in this evaluation continue to maintain adequate defense-in-depth. The only aspect of the defense-in-depth approach that is altered is that associated with repowering equipment. The functions associated with repowering equipment are now achieved through these alternatives:

- Power to the vital battery chargers can be provided initially through the TSC batteries, and later as supported by the TSC diesel generator (KED02).
- Power to the vital battery chargers can be provided through the existing plant MCCs using the 1000kW diesel generator's KDG08 or KDG09 installed under ESRs 11-0050 and 12-0143.
- Power to the vital battery chargers can be provided from the 100kW Flex diesel generator (KBD01A), connecting cables from the 100kW diesel generator staged outside the Technical Support Center through the TSC and Turbine Building, directly to the vital battery chargers in the battery rooms.
- Diesel generator's KDG08 or KDG09 can provide long term decay heat removal by powering the SAFW pumps (ESRs 11-0050 and 12-0143). These diesel generators can also provide RCS reactivity and inventory control by powering the alternate RCS injection pump (PCH02) (ESRs 12-0143 and 12-0144).

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The proposed amendment is intended to modify a commitment to install a modification as part of Ginna's transition to NFPA 805 approved under Amendment 119 to Renewed Operating License DPR-18. Since the modification proposed for elimination under this request was originally identified as necessary to meet the performance requirements as specified under NFPA 805, the relevant regulatory requirements are 10 CFR 50 Appendix A, GDC Criterion 3 and 10 CFR 50.48(c)(3)(ii):

- 10 CFR 50 Appendix A, GDC Criterion 3 – Fire Protection
Fire detection and fighting systems of appropriate capacity and capability shall be provided and designed to minimize the adverse effects of fires on structures, systems, and components important to safety.

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- 10 CFR 50.48(c)(3)(ii)
The licensee shall complete its implementation of the methodology in Chapter 2 of NFPA 805 (including all required evaluations and analyses) and, upon completion, modify the fire protection plan required by paragraph (a) of this section to reflect the licensee's decision to comply with NFPA 805, before changing its fire protection program or nuclear power plant as permitted by NFPA 805.

The proposed change was evaluated with respect to a possible impact on compliance with these requirements. The evaluation concluded that the Ginna Fire Protection Program will continue to be compliant with these regulatory requirements and with NFPA 805.

4.2 Precedent

The NRC approved Amendment No. 306 in a Safety Evaluation Report dated May 12, 2017 for Arkansas Nuclear One, Unit 2 (ML17096A235) in which they revised the NFPA 805 modifications.

4.3 No Significant Hazards Consideration

The proposed change would permit Ginna to revise a commitment to install overcurrent protection for the emergency diesel generators, originally proposed to support the transition to a new fire protection licensing basis which complies with the requirements of 10 CFR 50.48(a) and (c) and the guidance in Regulatory Guide (RG) 1.205, Revision 1. The revised commitment would not adversely impact compliance with regulatory requirements.

Exelon Generation Company, LLC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below.

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Further consideration of committed modifications has resulted in the conclusion that the modification to install overcurrent protection, Engineering Service Request (ESR) 12-0141 (i.e., modification), is no longer required in the NFPA 805 project modification scope. The original purpose of the overcurrent protection modifications was to reduce fire risk by protecting the emergency diesel generators (EDGs) from fire-induced overcurrent events allowing local recovery of the EDGs. Several alternative means will be made available to provide the power for decay heat removal, RCS inventory and reactivity control, as well as providing power to the vital battery chargers, long-term indication and control power, and breaker control.

Operation of Ginna in accordance with the proposed amendment does not increase the probability or consequences of accidents previously evaluated. Engineering analyses, which may include engineering evaluations, probabilistic safety assessments, and fire modeling calculations, have been performed to demonstrate that the performance-based requirements of NFPA 805 have been satisfied with the elimination of fire-induced overcurrent protection. The proposed amendment does not affect accident initiators, nor

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does it alter design assumptions, conditions, or configurations of the facility that would increase the probability of accidents previously evaluated. Further, the changes to be made for fire hazard protection and mitigation do not adversely affect the ability of structures, systems, or components to perform their design functions for accident mitigation, nor do they affect the postulated initiators or assumed failure modes for accidents described and evaluated in the UFSAR. Structures, systems, or components required to safely shutdown the reactor and to maintain it in a safe shutdown condition will remain capable of performing their design functions.

The proposed amendment will not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of any accident previously evaluated, and equipment required to mitigate an accident remains capable of performing the assumed function(s). The applicable radiological dose criteria will continue to be met.

The combination of all the proposed modifications and data updates reduces the overall calculated delta risk relative to the previously submitted information even with the removal of the fire-induced overcurrent modifications. The net Core Damage Frequency (CDF) delta risk including the internal events offset is $4\text{E-}6$. The net Large Early Release Frequency (LERF) delta risk including the internal events offset is less than $1\text{E-}7$.

Based on the above discussion, it is concluded that the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any kind of accident previously evaluated?

Response: No

The original purpose of the overcurrent protection modifications was to reduce fire risk by protecting the EDGs from fire-induced overcurrent events allowing local recovery of the EDGs. Several alternative means will be made available to provide the power for decay heat removal, RCS inventory and reactivity control, as well as providing power to the vital battery chargers, long-term indication and control power, and breaker control in lieu of ESR-12-0141. Operation of Ginna in accordance with the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed change does not alter the requirements or functions for systems required during accident conditions. Implementation of this change will not result in new or different accidents.

The proposed amendment does not introduce new or different accident initiators, nor does it alter design assumptions, conditions, or configurations of the facility in such a manner as to introduce new or different accident initiators. The proposed amendment does not adversely affect the ability of structures, systems, or components to perform their design function. Structures, systems, or components required to safely shutdown the reactor and maintain it in a safe shutdown condition remain capable of performing their design functions.

The requirements of NFPA 805 address only fire protection and the impacts of fire on the plant that have previously been evaluated. Thus, implementation of the proposed

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amendment would not create the possibility of a new or different kind of accident beyond those already analyzed in the UFSAR. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced, and there will be no adverse effect or challenges imposed on any safety-related system as a result of the proposed amendment.

Based on the above discussion, it is concluded that the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in the margin of safety?

Response: No

The purpose of the proposed amendment is to permit Ginna to adopt a new fire protection licensing basis which complies with the requirements in 10 CFR 50.48(a) and (c) and the guidance in Regulatory Guide 1.205, Revision 1. The NRC considers that NFPA 805 provides an acceptable methodology and performance criteria for licensees to identify fire protection systems and features that are an acceptable alternative to the 10 CFR 50, Appendix R required fire protection features (69 Fed. Reg. 33536, June 16, 2004). The proposed change eliminates the overcurrent protection modifications which were intended to reduce fire risk by protecting the EDGs from fire-induced overcurrent events allowing local recovery of the EDGs. Several alternative means will be made available to provide the power for decay heat removal, RCS inventory and reactivity control, and vital auxiliaries such as providing power to the vital battery chargers, long-term indication and control power, and breaker control functions in lieu of ESR-12-0141. These alternative means will ensure that this change does not result in a significant reduction in the margin of safety.

The overall approach of NFPA 805 is consistent with the key principles for evaluating license basis changes, as described in Regulatory Guide 1.174, Revision 2, is consistent with the defense-in-depth philosophy, and maintains sufficient safety margins. Engineering analyses, which may include engineering evaluations, probabilistic safety assessments, and fire modeling calculations, have been performed to demonstrate that the performance-based methods do not result in a significant reduction in the margin of safety.

Operation of Ginna in accordance with the proposed amendment does not involve a significant reduction in the margin of safety. The proposed amendment does not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by this change. The proposed amendment does not adversely affect existing plant safety margins or the reliability of equipment assumed to mitigate accidents in the UFSAR. The proposed amendment does not adversely affect the ability of structures, systems, or components to perform their design function. Structures, systems, or components required to safely shut down the reactor and to maintain it in a safe shutdown condition remain capable of performing their design functions.

Based on the above discussion, it is concluded that the proposed amendment does not involve a significant reduction in the margin of safety.

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Based on the above, EGC concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of no significant hazards consideration is justified.

4.4 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Render, Diane, U.S. Nuclear Regulatory Commission, letter to Hanson, Bryan, Exelon Generation Company, LLC, "R.E. Ginna Nuclear Power Plant, Issuance of Amendment Regarding Transition to a Risk Informed, Performance-Based Fire Protection Program in Accordance with Title 10 of the Code of Federal Regulations Section 50.48(c), (CAC No. MF1393)," dated November 23, 2015 (ADAMS Accession No. ML15271A101).
2. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated August 7, 2015.
3. Tam, Peter, U.S. Nuclear Regulatory Commission, E-mail to Harding, Thomas, Exelon Generation Company, LLC, "NRC Staff Comments on the 'Roadmap'," dated July 29, 2015 (ADAMS Accession No. ML15210A904).
4. Tam, Peter, U.S. Nuclear Regulatory Commission, E-mail to Harding, Thomas, Exelon Generation Company, LLC, "Summary of the Conference Call with Ginna, Re: The Proposed NFPA-805 Amendment (TAC MF1393)," dated July 10, 2015 (ADAMS Accession No. ML15191A413).
5. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility

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Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated June 11, 2015.

6. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated March 18, 2015.
7. Thadani, Mohan, U.S. Nuclear Regulatory Commission, Email to Harding, Thomas, Exelon Generation Company, LLC, "Ginna NFPA-805-Probabilistic Risk Assessment (PRA) RAI 19.03," dated February 3, 2015 (ADAMS Accession No. ML15034A136).
8. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated December 4, 2014.
9. Thadani, Mohan, U.S. Nuclear Regulatory Commission, letter to Harding, T., Exelon Generation Company, LLC, "RE: Ginna NFPA-805 Call," dated October 27, 2014 (ADAMS Accession No. ML14302A822).
10. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information," dated September 24, 2014.
11. Thadani, Mohan, U.S. Nuclear Regulatory Commission letter to Pacher, J., R.E. Ginna Nuclear Power Plant Inc., "R.E. Ginna Nuclear Power Plant – Second Round of Request for Additional Information Concerning Request to Adopt National Fire Protection Association Standard NFPA 805, "Performance Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (TAC No. MF1393)," dated September 19, 2014 (ADAMS Accession No. ML14254A166).
12. Pacher, Joseph, E., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Supplement to License Amendment to Transition to NFPA 805," dated September 5, 2014.
13. Barstow, James, Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "Pending NRC Actions Requested by Constellation Energy Nuclear Group, LLC," dated March 28, 2014 (ADAMS Accession No. ML 14087A274).
14. Pacher, Joseph, E., Constellation Energy Nuclear Group, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information RE: License Amendment to Transition to NFPA 805," dated February 28, 2014 (ADAMS Accession No. ML 14065A033).

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15. Pacher, Joseph, E., Constellation Energy Nuclear Group, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information RE: License Amendment to Transition to NFPA 805," dated January 29, 2014 (ADAMS Accession No. ML14038A109).
16. Pacher, Joseph, E., Constellation Energy Nuclear Group, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Renewed Facility Operating License No. DPR-18, Docket No. 50-244, Response to Request for Additional Information RE: License Amendment to Transition to NFPA 805," dated December 17, 2013 (ADAMS Accession No. ML13353A417).
17. Thadani, Mohan, U.S. Nuclear Regulatory Commission, letter to Harding, T., Constellation Energy Nuclear Group, "R.E. Ginna Nuclear Power Plant, NFPA 805 License Amendment Request, Audit RAIs, TAC No. MF1393," dated September 12, 2013 (ADAMS Accession No. ML 13261A114) and "RE: Voluntary Fire Protection Risk Initiative," October 9, 2013 (ADAMS Accession No. ML13282A574).
18. Pacher, Joseph, E., Constellation Energy Nuclear Group, letter to U.S. Nuclear Regulatory Commission, "R.E. Ginna Nuclear Power Plant, Docket No. 50-244, License Amendment Request Pursuant to 10 CFR 50.90: Adoption of NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)," dated March 28, 2013 (ADAMS Accession No. ML13093A064).
19. U.S. Nuclear Regulatory Commission, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," Regulatory Guide 1.205, Revision 1, December 2009 (ADAMS Accession No. ML092730314).
20. Nuclear Energy Institute, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," NEI 04-02, Revision 2, Washington, DC, April 2008 (ADAMS Accession No. ML081130188).
21. NFPA Standard 805, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants, 2001 Edition" [NFPA 805], January 13, 2001.
22. NUREG-2169, "Nuclear Power Plant Fire Ignition Frequency and Non-Suppression Probability Estimation Using the Updated Fire Events Database United States Fire Event Experience Through 2009," January 2015.
23. NUREG-2178, "Refining and Characterizing Heat Release Rates From Electrical Enclosures During Fire (RACHELLE-FIRE) – Volume 1: Peak Heat Release Rates and Effect of Obstructed Plume, Final Report," EPRI 3002005578, April 2016.
24. NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities Volume 2: Detailed Methodology," Final Report, EPRI 1011989, September 2005.

Enclosure 2

Attachment M (Revised) - License Condition Changes

M. License Condition Changes

5 Pages Attached

Replace the current Ginna fire protection license condition 2.C(3) with the standard license condition from Regulatory Guide 1.205, Regulatory Position 3.1, modified as shown below.

It is the Ginna understanding that implicit in the superseding of this license condition, all prior fire protection program SERs and commitments have been superseded in their entirety by the revised license condition.

No other license conditions need to be revised or superseded.

Ginna implemented the following process for determining that these are the only license conditions required to be either revised or superseded to implement the new fire protection program which meets the requirements in 10 CFR 50.48(a) and 50.48(c). A review was conducted of the Ginna Facility Operating License DPR-18. The review was performed by reading the Operating License and performing electronic searches. Outstanding LARs that have been submitted to the NRC were also reviewed for potential impact on the license condition.

Supersede License Condition 2.C(3):

"Fire Protection

- (a) *The licensee shall implement and maintain in effect all fire protection features described in the licensee's submittals referenced in and as approved or modified by the NRC's Fire Protection Safety Evaluation (SE) dated February 14, 1979, and SE supplements dated December 17, 1980, December 17, 1980, June 22, 1981, February 27, 1985, and March 21, 1985 or configurations subsequently approved by the NRC, subject to provision (b) below.*
- (b) *The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.*
- (c) *Deleted"*

New License Condition:**Fire Protection Program**

R. E. Ginna Nuclear Power Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee's amendment request dated 3/28/13, supplemented by letters dated 12/17/13, 1/29/14, 2/28/14, 9/5/14, 9/24/14, 12/4/14, 1/7/15, 3/18/15, 4/24/15, 6/11/15, and as approved in the safety evaluation report dated ~~11/23/15.~~ **11/23/15.** Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- (a) Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.
- (b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7} /year (yr) for CDF and less than 1×10^{-8} /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

Other Changes that May Be Made Without Prior NRC Approval**(1) Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program**

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to the NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the

component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is “adequate for the hazard.” Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and
- Passive Fire Protection Features (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

(2) Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee’s fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation dated 11/23/15 to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

Transition License Conditions

- (1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee’s fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
- (2) The licensee shall implement the modifications to its facility, as described in LAR Attachment S, Table S-2, “Plant Modifications Committed,” of CENG letter dated March 28, 2013, to complete the transition to full compliance with 10 CFR 50.48(c) no later than prior to startup from the second refueling outage greater than 12 months after receipt of the safety evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

- (3) The licensee shall complete the implementation items listed in LAR Attachment S, Table S-3, "Implementation Items," of CENG letter dated March 28, 2013, except Implementation Items 9, ~~10, 11, 12, 13, 14~~ 10, 11, 12, 13, 14, 15, 19, ~~21, 23, and 24~~ 21, 23, and 24 by 180 days after NRC approval unless that date falls within a scheduled refueling outage, then implementation will occur 60 days after startup from that scheduled refueling outage. ~~These~~ These implementation are associated with modifications described in Table S-2 and will be completed once the related modifications are installed and validated in the PRA model.