UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

November 17, 2015

EA-15-211

Mr. Joseph E. Pacher
Site Vice President
R.E. Ginna Nuclear Power Plant, LLC
Exelon Generation Company, LLC
1503 Lake Road
Ontario, NY 14519

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000244/2015008 AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Pacher:

On October 1, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at your R.E. Ginna Nuclear Power Plant, LLC (Ginna). The enclosed inspection report documents the inspection results, which were discussed on October 1, 2015, with Mr. Joseph E. Pacher, Site Vice President and other members of your staff. On October 29, 2015, the team conducted a final exit with members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed station personnel. The inspectors also reviewed mitigation strategies for addressing large fires and explosions.

One licensee-identified issue of substantial safety significance (Yellow) was determined to be a violation of NRC requirements. The NRC determined this issue warranted enforcement discretion because it satisfied the criteria established in NRC Enforcement Policy Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," and NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," Section 11.05(b), "Treatment of Items Associated with Enforcement Discretion." The Regional Administrator, Region I, was consulted regarding enforcement discretion for this issue.

In addition, two NRC-identified issues of very low safety significance (Green) were also determined to be violations of NRC requirements. The NRC determined that these issues also warranted enforcement discretion in accordance with Enforcement Policy Section 9.1 and IMC 0305, Section 11.05(b).

If you contest any violation in this report, you should provide a written response within 30 days of the date of this inspection report with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspectors at Ginna.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of the NRC's document system, Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Raymond K. Lorson, Director
Division of Reactor Safety

Docket No: 050-244
License No: DPR-18

Enclosure:
Inspection Report 05000244/2015008
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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REGION I

Docket No:	50-244
License No:	DPR-18
Report No:	05000244/2015008
Licensee:	Exelon Generation Company, LLC
Facility:	R.E. Ginna Nuclear Power Plant, LLC
Location:	Ontario, New York
Dates:	September 14, 2015, through October 1, 2015
Inspectors:	J. Richmond, Senior Reactor Inspector (Team Leader) W. Cook, Senior Reactor Analyst L. Dumont, Reactor Inspector S. Galbreath, Reactor Inspector
Observers:	H. Roth, Fire Prevention and Control, Homeland Security and Emergency Services Division, State of New York
Approved by:	John F. Rogge, Chief Engineering Branch 3 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000244/2015008; 09/14/2015 - 10/01/2015; R.E. Ginna Nuclear Power Plant; Triennial Fire Protection Inspection.

This report covered a 2 week on-site triennial fire protection team inspection by specialist inspectors. The significance of most issues is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

NRC Identified and Self-Revealing Findings

No Findings were identified for assessment.

Other Findings

A licensee-identified issue of substantial safety significance was reviewed by the inspectors. Exelon entered this deficiency into its corrective action program and subsequently corrected the condition. The NRC exercised discretion and did not issue a violation for this issue as described in Section 4OA3 of this report.

REPORT DETAILS

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05T, "Fire Protection." The objective of the inspection was to assess whether Exelon Generation Company, LLC (Exelon) had implemented an adequate fire protection program and whether post-fire safe shutdown capabilities had been established and were properly maintained at R.E. Ginna Nuclear Power Plant, LLC (Ginna). The following fire areas (FAs) and/or fire zones (FZs) were selected for detailed review based on prior inspection results and risk insights from the Ginna Individual Plant Examination of External Events (IPEEE):

Fire Areas and Fire Zones

- Fire Zone IBN-1, Intermediate Building North, Elevation (Elev.) 253 foot
- Fire Zone AHR, Control Building Complex - Air Handling Room (AHR) Elev. 253 foot
- Fire Area EDG1B, 1B Emergency Diesel Generator (EDG) Room, including the 1B EDG Cable Vault. Elev. 253 foot

Inspection of these FAs/FZs fulfilled the inspection procedure requirement to inspect a minimum of three samples.

The inspection team evaluated Exelon's fire protection program (FPP) against applicable requirements which included Technical Specifications, Operating License Condition 2.C.(3), NRC Safety Evaluation Reports, Title 10 of *Code of Federal Regulations* (CFR) 50.48, 10 CFR Part 50 Appendix R, and Branch Technical Position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1 and Appendix A. The team also reviewed related documents that included the Updated Final Safety Analysis Report (UFSAR), Sections 7.4.4 and 9.5.1, fire protection plan, fire hazards analysis (FHA), and post-fire safe shutdown analyses.

The team evaluated aspects of two mitigating strategies for responding to large fires and explosions, which are required by Operating License Condition 2.C.(8) and 10 CFR 50.54(hh)(2). The team's review included Nuclear Energy Institute (NEI) 06-12, "B.5.b Phases 2 & 3 Submittal Guidance." Inspection of these strategies fulfills the inspection procedure requirement to inspect a minimum of one sample.

Specific documents reviewed by the team are listed in the attachment to this report.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R05 Fire Protection (IP 71111.05T)

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the FHA, post-fire safe shutdown analyses, and supporting drawings and documents to verify whether the safe shutdown capabilities were properly protected from fire damage. The team evaluated equipment and cable separation to determine whether the applicable separation requirements of Appendix R, Section III.G and the Ginna design and licensing bases were maintained for the credited safe shutdown equipment and their supporting power, control, and instrumentation cables. The team's review included an assessment of the adequacy of the selected systems for reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and associated support system functions.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The team walked down accessible portions of the selected FAs to evaluate whether the material conditions of the FA boundaries were adequate for the fire hazards in the area. The team compared the FA boundaries, including walls, ceilings, floors, fire doors, fire dampers, penetration seals, electrical raceway and conduit fire barriers, and redundant equipment fire barriers and radiant energy heat barriers to design and licensing basis requirements, industry standards, and the Ginna FPP, as approved by the NRC, to identify any potential degradation or non-conformances.

The team reviewed selected engineering evaluations and qualification records for a sample of penetration seals to determine whether the fill material was properly installed and whether the as-left configuration satisfied design requirements for the intended fire rating. The team also reviewed similar records for selected fire protection wraps to verify whether the material and configuration was appropriate for the required fire rating and conformed to the engineering design.

The team also reviewed recent inspection and functional test records for fire dampers, and the inspection records for penetration seals and fire barriers, to verify whether the inspection and testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified. In addition, the team reviewed recent results for Halon fire damper functionality tests to verify whether the testing was

adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The team evaluated manual and automatic fire suppression and detection systems in the selected FAs to determine whether they were installed, tested, maintained, and operated in accordance with NRC requirements, National Fire Protection Association (NFPA) codes of record, and the Ginna FPP, as approved by the NRC. The team also assessed whether the capabilities of suppression systems were adequate to control and/or extinguish fires associated with the hazards in the selected areas.

The team reviewed the as-built capability of the fire water supply system to verify whether the design and licensing basis and NFPA code of record requirements were satisfied, and to assess whether those capabilities were adequate for the hazards involved. The team reviewed the fire water system hydraulic analyses to assess the adequacy of a single fire water pump to supply the largest single hydraulic load on the fire water system plus concurrent fire hose usage. The team evaluated the fire pump performance tests to assess the adequacy of the test acceptance criteria for pump minimum discharge pressure at the required flow rate, to verify whether the criteria was adequate to ensure that the design basis and hydraulic analysis requirements were satisfied. The team also evaluated the underground fire loop flow tests to verify whether the tests adequately demonstrated that the flow distribution circuits were able to meet design basis requirements. In addition, the team reviewed recent pump and loop flow test results to verify whether the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

The team reviewed initial discharge testing, design specifications, vendor requirements, modifications and engineering evaluations, and routine functional testing for a sample of Halon suppression systems. The team walked down accessible portions of the Halon system, including storage tanks and supply systems, to independently assess the material condition, operational lineup, and availability of the systems. The team also reviewed and walked down the associated fire fighting strategies and Halon system operating procedures.

The team walked down accessible portions of the detection and water suppression systems in selected areas and major portions of the fire water supply system, including motor and diesel driven fire pumps, interviewed system and program engineers, and reviewed selected condition reports (CRs) to independently assess the material condition of the systems and components. In addition, the team reviewed recent test results for the fire detection and suppression systems for the selected FAs to verify

whether the testing was adequately conducted, the acceptance criteria were met, and any potential performance degradation was identified.

The team assessed the fire brigade capabilities by reviewing training, qualification, and drill critique records. The team also reviewed Exelon's fire fighting strategies (i.e., pre-fire plans) and smoke removal plans for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact post-fire safe shutdown capability. The team independently inspected the fire brigade equipment, including personnel protective gear (e.g., turnout gear) and smoke removal equipment, to determine operational readiness for fire fighting. In addition, the team reviewed Exelon's fire brigade equipment inventory and inspection procedure and recent inspection and inventory results to verify whether adequate equipment was available, and whether any potential material deficiencies were identified.

b. Findings

No findings were identified.

.04 Protection from Damage from Fire Suppression Activities

a. Inspection Scope

The team performed document reviews and plant walkdowns to determine whether redundant trains of systems required for hot shutdown, located in the same or adjacent FAs, were not subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. Specifically, the team evaluated whether:

- A fire in one of the selected FAs would not release smoke, heat, or hot gases that could cause unintended activation of suppression systems in adjacent FAs which could potentially damage all redundant safe shutdown trains;

- A fire suppression system rupture, inadvertent actuation, or actuation due to a fire, in one of the selected fire areas, could not directly damage all redundant trains (e.g. sprinkler caused flooding of other than the locally affected train); and

- Adequate drainage was provided in areas protected by water suppression systems.

b. Findings

No findings were identified.

.05 Post-Fire Safe Shutdown Capability – Normal and Alternative

a. Inspection Scope

The team reviewed the safe shutdown analysis, operating procedures, piping and instrumentation drawings, electrical drawings, the UFSAR, and other supporting documents for the selected fire areas to verify whether Exelon had properly identified the systems and components necessary to achieve and maintain post-fire safe shutdown conditions. The team evaluated selected systems and components credited by the safe shutdown analysis for reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions to assess the adequacy of Exelon's alternative shutdown methodology. The team also assessed whether alternative post-fire shutdown could be performed both with and without the availability of off-site power. The team walked down selected plant configurations to verify whether they were consistent with the assumptions and descriptions in the safe shutdown and fire hazards analyses. In addition, the team evaluated whether the systems and components credited for use during post-fire safe shutdown would remain free from fire damage.

The team reviewed the training program for licensed and non-licensed operators to verify whether it included alternative shutdown capability. The team also verified whether personnel required for post-fire safe shutdown, using either the normal or alternative shutdown methods, were trained and available on-site at all times, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire shutdown and performed an independent walk through of procedure steps (i.e., a procedure tabletop) to assess the adequacy of implementation and human factors within the procedures. The team also evaluated the time required to perform specific actions to verify whether operators could reasonably be expected to perform those actions within sufficient time to maintain plant parameters within specified limits.

Specific procedures reviewed for normal and alternative post-fire shutdown included:

- ER-FIRE.0, Control Room Response to Fire Alarms and Reports;
- ER-FIRE.1, Alternate Shutdown for Control Complex Fire;
- ER-FIRE.6, Response to Fire in EDG "B" Vault;
- FRP-11.0, Fire Response Plan for Intermediate Bldg. Clean Side Basement;
- FRP-16.0, Fire Response Plan for Air Handling Room; and
- FRP-25.0, Fire Response Plan for EDG Room "B" and Vault.

The team reviewed selected operator manual actions to verify whether they had been properly reviewed and approved and whether the actions could be implemented in accordance with plant procedures in the time necessary to support the safe shutdown method for each fire area. The team also reviewed the periodic testing of the alternative shutdown transfer and isolation capability, and instrumentation and control functions, to

evaluate whether the tests were adequate to ensure the functionality of the alternative shutdown capability.

b. Findings

1. Alternative Shutdown Procedure Deficiencies for Postulated Spurious Operations

Introduction: The team identified a violation of very low safety significance (Green) of Ginna Operating License Condition 2.C.(3) for failure to implement and maintain all aspects of the approved FPP. Specifically, Exelon had not implemented an adequate alternative shutdown procedure, as required by Appendix R, Section III.L.3 and the approved FPP. The post-fire operating procedures did not ensure that postulated fire-damage to cables associated with "A" EDG auxiliary equipment would be mitigated prior to an adverse impact to the "A" EDG.

Description: 480VAC Motor Control Center "H" (MCC-H), located in the "A" EDG room, supplied power to essential support equipment for the "A" EDG, such as the "A" fuel oil transfer pump and "A" EDG room cooling. In addition, MCC-H supplied the "B" EDG air start compressor and MOV-4670 (an essential service water motor operated valve (MOV)). Exelon's safe shutdown analysis, DA-EE-2000-066, "Appendix R Conformance Analysis," identified that the cables for the later two circuits (i.e., "B" air start compressor and MOV-4670) were routed from the "A" EDG room through the "B" EDG room. DA-EE-2000-066 determined that a fire in the "B" EDG room or "B" cable vault could result in de-energizing MCC-H due to a lack of coordination between the MCC-C supply breaker to MCC-H and the associated load breakers on MCC-H. As a result, the analysis postulated that a fire in the "B" EDG room or vault could result in a loss of MCC-H and, without operator action, a subsequent loss of the "A" EDG, due to a loss of fuel oil makeup to the "A" day tank.

Fire response procedure FRP-25.0, "Diesel Generator Room B and Vault," Attachment 1, "Affected Equipment," contained a "comment/operator action" column for affected equipment and provided the following operator guidance:

- Loss of A-EDG and MCC-H due to lack of breaker coordination causing tripping of the MCC-H feeder breaker on MCC-C resolved by "Response Not Obtained" actions included in existing emergency operating procedures.
- It may be necessary to locally re-close the MCC-C feeder breaker to MCC-H.
- Loss of MCC-H affects credited "A" EDG room cooling, "A" fuel oil transfer pump, and "A" day tank level transmitter.

The team determined that the guidance in FRP-25.0 did not constitute step by step operating instructions and was inadequate for the following reasons:

- No operator actions existed in any emergency operating procedure for this issue.
- No other procedure contained any operator guidance for this issue.
- FRP-25.0 did not identify which MCC-H circuits would be faulted by fire damage.

- FRP-25.0 did not provide any guidance to clear the fault on MCC-H before attempting to re-energize it.
- No evaluation of EDG run time existed for a loss of the fuel oil transfer pump, to determine the time available for operators to diagnose and recover from a loss of MCC-H.

In addition, the team noted that FRP-25.0 was a fire response plan intended to be implemented by the five person fire brigade while ER-FIRE.6, "Response to Fire in D/G B Vault," was a continuous use control room operating procedure. However, the team identified that ER-FIRE.6 was narrowly focused on a loss of service water due to a fire in the "B" EDG cable vault and did not address other operator actions that may be needed for a fire in the "B" vault.

In response to this issue, Exelon evaluated the available EDG run time based on the nominal fuel oil volume in a day tank and expected post-fire electrical loads and determined that, without a fuel oil transfer pump, an EDG would have sufficient fuel for approximately 2.9 hours. In addition, Exelon reviewed alarm response procedures and operator actions for the expected panel trouble alarms associated with a loss of MCC-H. Exelon concluded that operators would have sufficient time to diagnose and troubleshoot the loss of MCC-H and recover it prior to a loss of the "A" EDG. Exelon also noted that additional technical help would be available to the operators within one hour from the Technical Support Center. Exelon entered this deficiency into its corrective action program (CAP) as CR 02563623.

Analysis: Failure to provide an adequate post-fire safe shutdown operating procedure to ensure the integrity of alternating current (AC) power availability was a performance deficiency (PD). This PD was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

The team performed a Phase 1 Significance Determination Process (SDP) screening, in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix F, "Fire Protection Significance Determination Process." This deficiency affected the post-fire safe shutdown category because Exelon's fire response procedures were degraded. This issue was screened to very low safety significance (Green) because it was assigned a low degradation rating. The team determined this issue had a low degradation rating because the procedural deficiencies could be compensated by operator experience and system familiarity within sufficient time to maintain functionality of the "A" EDG.

Cross-cutting aspects are not applicable to issues involving enforcement discretion.

Enforcement: Ginna License Condition 2.C.(3), in part, required Exelon to implement and maintain in effect all fire protection features described in licensee submittals and as approved by the NRC. The Ginna FPP stated that the requirements of Appendix R, Section III.L were applicable for areas where alternative shutdown capability was

selected and the "B" EDG Room and Vault was designated as an alternative shutdown area. Appendix R, Section III.L.3 required procedures to be in effect to implement the alternative shutdown capability.

Contrary to the above, from 1983 (original Appendix R analysis) until present, Exelon had not implemented an adequate alternative shutdown procedure. Specifically, FRP-25.0 did not contain adequate instructions to ensure that postulated fire-damage to cables associated with "A" EDG auxiliary equipment, which were routed through the "B" EDG cable vault, would be mitigated prior to an adverse impact to the "A" EDG. As a consequence, an operator would have to recognize, diagnose, and correct a loss of power to MCC-H in sufficient time to prevent a loss of the "A" EDG. Exelon entered this deficiency into its CAP as CR 02563623.

Exelon was in transition to NFPA 805 and, therefore, this NRC-identified issue was evaluated in accordance with the criteria established in NRC Enforcement Policy Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," and IMC 0305, "Operating Reactor Assessment Program," Section 11.05, "Treatment of Items Associated with Enforcement Discretion." Because all the criteria were satisfied, the NRC exercised enforcement discretion and did not issue a violation for this issue.

2. Spurious Operation of Pressurizer Power Operated Relief Valves not Analyzed

Introduction: The team identified a violation of very low safety significance (Green) of Ginna Operating License Condition 2.C.(3) for failure to implement and maintain all aspects of the approved FPP. Specifically, Exelon's safe shutdown methodology postulated spurious operation of the pressurizer Power Operated Relief Valves (PORVs), but had not analyzed the effect of the spurious operations. As a result, Exelon had not adequately determined whether pressurizer level would remain within the indicated range during alternative shutdown operations, as required by Appendix R, Section III.L and the approved FPP.

Description: The team reviewed the safe shutdown methodology for a fire in Area AHR (control complex) to evaluate whether spurious operation of pressurizer PORVs could have an adverse effect on achieving hot shutdown.

In March 2006, DA-ME-2000-075, "Pressurizer, Volume Control Tank, and Refueling Water Storage Tank Evaluations for Appendix R," determined by calculation that, during an alternative shutdown scenario, charging flow must be re-established within 36 minutes to maintain pressurizer level in the indicated range. The calculation assumed a reactor coolant system (RCS) leakage value at the design basis limit established by Technical Specifications and normal reactor coolant pump seal leakage. The calculation also assumed that the PORVs remained closed.

In October 2006, Memorandum DBCOR 2006-0057, "Appendix R Time Critical Tasks Validation for Extended Power Uprate (EPU)," stated that the time available to restore a charging pump would be reduced from 36 minutes to 23.9 minutes based on a change to pressurizer no load level program. A-601.10, "Time Critical Action Management Program," was also revised to reflect 23.9 minutes as the required completion time to

re-establish charging. However, Exelon was not able to provide the inspection team with any explicit evaluation, calculation, or analysis to support the 23.9 minute value. Based on the described change to the pressurizer no load level program, the team concluded that the EPU evaluation also probably assumed that the PORVs remained closed during the evaluated fire scenario.

The team identified that Exelon's safe shutdown analysis for a control complex fire postulated spurious operation of the PORVs. The analysis also stated that the PORVs would fail in their desired safe shutdown position when de-energized by a step in ER-FIRE.1, "Alternate Shutdown for Control Complex Fire." Therefore, the team concluded that Exelon had non-conservatively determined the time available to re-establish charging during an alternative fire scenario because their calculation had incorrectly assumed that the PORVs would remain closed prior to being de-energized.

Although ER-FIRE.1 did contain an early step to de-energize the PORV circuits from outside the control complex following control room abandonment, Exelon's Time Critical Action Management Program (i.e., A-601.10) did not identify, control, or validate that operator action. The team performed a tabletop walk through of ER-FIRE.1 with a senior reactor operator and concluded that the step to de-energize the PORVs could be performed within approximately 5 minutes of abandoning the control room. To evaluate the significance of this issue, the team considered the following items:

- The 5 minute tabletop estimate has never been validated.
- The step would be performed by the Shift Manager, who was not always in the control room. The tabletop estimate did not include any travel time.
- Exelon's time critical action program typically validated the time needed to re-establish charging between 19 to 20 minutes.

The team concluded that if a single PORV spuriously opened for a 5 minute period concurrent with the assumed RCS leakage in DA-ME-2000-075, then the pressurizer level would probably not remain in the indicated range, as required by Exelon's FPP.

In response to this issue, Exelon evaluated the impact of an open PORV for a 5 minute period and determined that operators would have 28 minutes to re-establish charging based on a more restrictive administrative limit of 0.5 gpm for RCS leakage in-place of the design basis Technical Specifications limit of 11 gpm used in DA-ME-2000-075. Exelon concluded that DA-ME-2000-075 required revision to add an assumption for spurious opening of a PORV and A-601.10 required revision to add a time critical operator action to de-energize the PORVs. Exelon entered this issue into their CAP as CRs 02563631 and 02563632. The team reviewed S-12.4, "RCS Leakage Surveillance Record Instructions," and concluded that application of the more restrictive RCS leakage in determining available time was reasonable.

Analysis: Failure to analyze the effects of spurious operation of a PORV was a PD. Specifically, Exelon's safe shutdown methodology postulated spurious operation of the PORVs, but had not analyzed the effect of the spurious operations. Exelon's safe shutdown analysis assumed operators had 23.9 minutes after a fire induced plant trip to re-establish the reactor coolant makeup (i.e., charging), but non-conservatively assumed

that the PORVs remained closed. In addition, Exelon relied upon a non-time critical operator manual action to de-energize the PORV circuits from outside the control room after control room abandonment.

This PD was more than minor because it was similar to Example 3.k of IMC 0612, Appendix E, "Examples of Minor Issues," which determined that calculation errors would be more than minor if, as a result of the errors, there was reasonable doubt of the operability of the component. For this issue, the team had a reasonable doubt as to whether operators had sufficient time to re-establish charging to maintain pressurizer level within the indicated range. In addition, this issue was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

The team performed an SDP Phase 1 screening, in accordance with IMC 0609, Appendix F. This deficiency affected the post-fire safe shutdown category because Exelon's safe shutdown analysis was incomplete. This issue was screened to very low safety significance (Green) because it was assigned a low degradation rating. The team determined this issue had a low degradation rating because Exelon's subsequent evaluation determined that the performance goals of Appendix R, Section III.L.2 were still satisfied, based on more restrictive administrative limits for RCS leakage than the Technical Specifications limits assumed in the original calculation. In addition, Exelon evaluated this issue with Ginna's fire probabilistic risk assessment (PRA) analysis and determined that the change in core damage frequency (CDF) attributed to this issue was in the low E-7 range. A Region I Senior Reactor Analyst reviewed Exelon's evaluation and concluded that the risk estimate was bounded by conservative assumptions and that this issue was of very low safety significance (Green).

Cross-cutting aspects are not applicable to issues involving enforcement discretion.

Enforcement: Ginna License Condition 2.C.(3), in part, required Exelon to implement and maintain in effect all fire protection features described in licensee submittals and as approved by the NRC. The Ginna FPP stated that the requirements of Appendix R, Section III.L were applicable for areas where alternative shutdown capability was selected and the control complex was designated as an alternative shutdown area. Appendix R, Section III.L.2 performance goals stated that pressurizer level shall remain within the indicated range.

Contrary to the above, from March 2006 until present, Exelon had not adequately determined that pressurizer level would remain within the indicated range during alternative shutdown operations. Specifically, DA-EE-2000-066 determined that a fire in the control complex could result in spurious opening of a PORV until completion of an operator action outside of the control complex to de-energize the circuit. However, calculation DA-ME-2000-075 determined the time available for operators to re-establish charging following control room abandonment but assumed that the PORVs remained free of fire damage and did not spuriously open. Exelon entered this deficiency into its CAP as CRs 02563631 and 02563632.

Exelon was in transition to NFPA 805 and, therefore, this NRC-identified issue was evaluated in accordance with the criteria established in NRC Enforcement Policy Section 9.1 and IMC 0305, Section 11.05. Because all the criteria were satisfied, the NRC exercised enforcement discretion and did not issue a violation for this issue.

.06 Circuit Analysis

a. Inspection Scope

The team reviewed Exelon's post-fire safe shutdown analysis for the selected FAs to determine whether the analysis identified both required and associated electrical circuits and cables for the systems and components necessary to achieve and maintain safe shutdown. The team reviewed electrical schematics and cable routing data for power, control, and instrument cables associated with selected components. Specifically, the team evaluated the selected circuits and cables to determine whether they were (a) adequately protected from potential fire damage, or (b) analyzed to show that fire-induced faults (e.g., hot shorts, open circuits, and shorts to ground) would not prevent safe shutdown, or (c) analyzed to show that potential damage could be mitigated with approved operator manual actions, in order to verify whether fire-induced faults could adversely impact safe shutdown capabilities. The team's evaluations considered credible fire scenarios, cable insulation attributes, cable failure modes, cable routing, and common power supply or electrical bus configurations.

In addition, the team reviewed cable raceway drawings and cable routing databases for a sample of components required for post-fire safe shutdown to determine whether those cables were routed as described in the safe shutdown analysis. The team also reviewed equipment important to safe shutdown, but not part of the success path, to assess whether Exelon's safe shutdown methodologies were appropriate, conformed to design and licensing basis requirements, and appropriately considered the guidance in NRC Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," Revision 2.

Cable failure modes were reviewed for the following components:

- Pressurizer Power Operated Relief Valve (PORV, PCV-430)
- Pressurizer PORV Block Valve for PCV-430 (MOV-516)
- "B" Charging Pump (PCH01B)
- Standby Auxiliary Feedwater (SAFW) Pump "D" Suction Valve (MOV-9629B)
- Pressurizer Level (PI-420B)
- "A" Steam Generator Level (LI-460AA)

The team reviewed a sample of circuit breaker and fuse over-current protection coordination studies to determine whether equipment needed for post-fire safe shutdown activities could be adversely affected due to a lack of coordination that could result in a common power supply or common electrical bus concern. The team also evaluated whether coordination studies appropriately considered multiple faults due to fire. In addition, the team reviewed a sample of circuit breaker maintenance records, for

components required for safe shutdown, to determine whether the breakers were properly maintained.

The team assessed the transfer of control from the control room to the alternative shutdown locations to determine whether it would be affected by fire-induced circuit faults (e.g., by the provision of separate fuses and power supplies for alternative shutdown control circuits).

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The team reviewed safe shutdown procedures, the safe shutdown analysis, and associated documents to verify whether an adequate method of communications would be available to plant operators following a fire. Specifically, the team evaluated whether plant telephones, page systems, and portable radios would be available for use and were properly maintained. During this review, the team considered the effects of ambient noise levels, clarity of reception, reliability, and coverage patterns. The team inspected selected emergency storage lockers to independently verify whether portable communication equipment was available for the fire brigade and plant operators. In addition, the team evaluated whether radio or phone repeaters, transmitters, and power supplies would be reasonably unaffected by a fire.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The team walked down the emergency lights in the selected fire areas to independently evaluate the placement and coverage areas of the lights. The team assessed whether the lights provided adequate illumination on local equipment and instrumentation required for post-fire safe shutdown, to ensure local operations could be reliably performed under expected post-fire conditions. Emergency light placement was also evaluated to determine adequate illumination of local area access and egress pathways.

The team verified whether the emergency light batteries were rated for at least an 8-hour capacity. Preventive maintenance procedures, the vendor manual, completed surveillance tests, and battery replacement practices were also reviewed to evaluate whether the emergency lighting had been maintained in a manner that would ensure reliable operation.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed Exelon's dedicated repair procedures, for components which might be damaged by fire and were required to achieve post-fire cold shutdown. The team evaluated selected cold shutdown repairs to determine whether they could be achieved within the time frames assumed in the design and licensing bases. In addition, the team verified whether the necessary repair equipment, tools, and materials (e.g., pre-cut cables with prepared attachment lugs) were available and accessible on site.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The team verified whether compensatory measures were in place for out-of-service, degraded, or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g., detection and suppression systems and equipment, passive fire barriers, pumps, valves, or electrical devices providing safe shutdown functions or capabilities). The team evaluated whether the short term compensatory measures adequately compensated for the degraded function or feature until appropriate corrective action could be taken and whether Exelon was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings were identified.

.11 Review and Documentation of Fire Protection Program Changes

a. Inspection Scope

The team reviewed recent changes to the approved fire protection program to assess whether those changes had an adverse effect on the ability to safely shutdown.

b. Findings

No findings were identified.

.12 Control of Transient Combustibles and Ignition Sources

a. Inspection Scope

The team reviewed Exelon's procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the FHA. A sample of hot work and transient combustible control permits were reviewed to assess the adequacy of Exelon's FPP administrative controls. The team performed plant walkdowns to independently verify whether transient combustibles and ignition sources were being properly controlled in accordance with the administrative controls.

b. Findings

No findings were identified.

.13 Large Fires and Explosions Mitigation Strategies

a. Inspection Scope

The team conducted a review of selected mitigation strategies intended to maintain or restore core decay heat removal and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions and/or fires. The team assessed whether Exelon continued to meet the requirements of the Ginna Station Operating License and 10 CFR 50.54(hh)(2). The team reviewed two mitigation strategies:

- Manual operation of the turbine-driven auxiliary feedwater pump; and
- Makeup to the steam generators using the portable (B.5.b) pump.

The team's review included: a detailed assessment of the procedural guidance; a walk down of two mitigation strategies with a trained operator to assess the feasibility of the strategies and operator familiarity; maintenance and surveillance testing of selected strategy equipment; and an inventory check of selected strategy equipment to ensure the appropriateness of equipment storage and availability. The team also evaluated the adequacy of corrective actions associated with issues identified during previous inspections and recent self-assessments in this area. Specific documents reviewed by the team are listed in the attachment to this report.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

a. Inspection Scope

The team reviewed a sample of CRs associated with the FPP, post-fire safe shutdown issues, and mitigation strategy issues to determine whether Exelon was appropriately identifying, characterizing, and correcting problems associated with these areas and whether the planned or completed corrective actions were appropriate. The CRs reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (IP 71153 - 1 Sample)

1. (Closed) Licensee Event Report (LER) 05000244/2014-002: Unanalyzed Condition due to postulated hot short fire event involving direct current (DC) control circuits affecting multiple fire areas

Introduction: Exelon identified a violation of substantial safety significance (Yellow) of Ginna Operating License Condition 2.C.(3) for failure to implement and maintain all aspects of the approved FPP. Specifically, Exelon did not ensure that one train of equipment necessary to achieve and maintain post-fire safe shutdown would remain free of fire damage. This issue was evaluated by the team and determined to warrant enforcement discretion.

Description: On March 13, 2014, during a review of industry operating experience, Exelon identified that the DC control circuits for the non-safety related circulating water pump discharge MOVs did not have adequate over-current protection. Exelon postulated that fire damage to the unprotected DC circuits could cause secondary fires in other fire areas and, as a consequence, adversely affect safe shutdown equipment. Exelon determined the cause of the condition was an original design configuration that did not conform to the current fire protection standards. There was no actual safety consequence for this condition. Exelon entered this issue into their CAP as CR-2014-001346, implemented compensatory measures for the affected fire areas, and subsequently corrected this condition by the addition of fuses to the affected DC circuits.

The team reviewed the LER, the associated causal analysis, corrective actions, performed plant walk downs, and interviewed Exelon staff. The inspectors did not identify any new issues during the review of this LER. This LER is closed.

Analysis: Failure to ensure that one train of equipment necessary to achieve and maintain safe shutdown would remain free of fire damage was a licensee-identified PD. This PD was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and

adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

Exelon evaluated this issue with Ginna's fire PRA analysis and determined that the change in CDF attributed to this issue was estimated to be 4E-5 per reactor year. A review of the dominant scenarios indicated that the risk from a large early release was bounded by the core damage assessment. A Region I Senior Reactor Analyst reviewed Exelon's evaluation and concluded that the risk estimate was bounded by conservative assumptions and that this issue would be of no greater than substantial safety significance (Yellow).

Cross-cutting aspects are not applicable to issues involving enforcement discretion.

Enforcement: Ginna License Condition 2.C.(3), in part, required Exelon to implement and maintain in effect all fire protection features described in licensee submittals and as approved by the NRC. The Ginna FPP required Exelon to maintain one train of equipment necessary to achieve and maintain safe shutdown free of fire damage. Contrary to the above, from 1967 (original construction) until April 11, 2014, Exelon postulated that fire damage to unprotected DC circuits could have resulted in secondary fires and, as a consequence, adversely affected equipment necessary to achieve and maintain safe shutdown. Exelon entered this issue into their CAP as CR-2014-001346, and subsequently corrected the condition.

Exelon was in transition to NFPA 805 and, therefore, this licensee-identified issue was evaluated in accordance with the criteria established in NRC Enforcement Policy Section 9.1 and IMC 0305 Section 11.05. Because all the criteria were satisfied, the NRC exercised enforcement discretion and did not issue a violation for this issue.

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. Joseph E. Pacher, Site Vice President, and other members of Exelon's staff on October 1, 2015. On October 29, 2015, the team presented additional inspection results for its review of LER 05000244/2014-002 via teleconference to Mr. Joseph E. Pacher, Site Vice President, and other members of Exelon's staff. The team verified that this report does not contain proprietary information.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
D. Lovgren, Electrical Design Engineer
S. Rafaniello, Electrical System Engineer
F. Peterson, Supervisor Engineering Programs
M. McGraw, Safe Shutdown Engineer
M. Wendler, Fire Marshall
J. Koshak, Senior Reactor Operator
R. Fellows, Senior Reactor Operator
C. Bradshaw, Work Week Manager
C. Siverd, Regulatory Engineer
R. Cavedo, Exelon PRA Engineer

NRC Personnel
C. Cahill, Senior Reactor Analyst
N. Perry, Senior Resident Inspector, Ginna
J. Petch, Resident Inspector, Ginna
H. Barrett, Fire Protection Branch, Risk Assessment Division, Nuclear Reactor Regulation

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000244/2014-002	LER	Unanalyzed Condition due to Postulated Hot Short Fire Event Involving DC Control Circuits Affecting Multiple Fire Areas (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Fire Protection Licensing and Design Basis Documents
DA-EE-2000-066, Appendix R Conformance Analysis (Safe Shutdown Analysis), Rev. 3
EPM-FPPR, Fie Protection Program and Fire Hazards Analysis, Rev. 11
NRC Safety Evaluation Report for Appendix R (Accession Nos. 8503050432 and 8503050430), dated 2/27/85
PLG-1214, Ginna IPEEE Fire Analysis, dated 6/98
UFSAR Section 7.4.4, Alternative Shutdown System, Rev. 25
UFSAR Section 9.5.1, Fire Protection Systems, Rev. 25

Calculations, Analysis, and Engineering Evaluations
0028-0011-002-003, NFPA 805 Fire Risk Evaluations, Rev. 0
109682-M-022, Steam Generator Dry-Out Time, Rev. 0
32-9183379-001, NFPA 805 Coordination Study, Rev. 001A
51-9089546-001, NFPA 805 Nuclear Safety Capability Assessment, Rev. 1A
A11014-C-001, Steam Generator Blowdown Depressurization following Fire and Trip, Rev. 0
DA-EE-2000-025, EDG Day Tank Instrument Loop Evaluation and Setpoint, Rev. 4
DA-ME-2000-001, City Yard Loop Capability to Supply Cooling to EDGs, Rev. 6
DA-ME-2000-040, City Water X-Tie to Fire Yard Loop Hydraulic Calculation, dated 3/13/12
DA-ME-2000-062, Evaluation of the Impact of Fire on Service Water Piping in EDG1B, Rev. 0
DA-ME-2000-075, Pressurizer, Volume Control Tank, and Refueling Water Storage Tank Evaluations for Appendix R, Rev. 2
DA-ME-94-118-02, Fire Barrier Qualification for Permanent Caulk Seals, Rev. 0
DA-ME-94-118-11, Fire Barrier Qualification for Pipe/Conduit/Sleeve Penetrations, Rev. 0
DA-ME-94-118-13, Fire Barrier Qualification for Non-Regulatory Fire Barrier Seals, Rev. 0
DBCOR-2006-0057, Appendix R Time Critical Tasks Validation for EPU, dated 10/31/06
ECP-09-0169, Update to ER Fire Procedures, dated 12/22/09
ECP-11-000612, Multiple Spurious Operations for a Fire in the Control Complex, Rev. 0
ECP-12-000463, Evaluation for Compensatory Measures for Degraded Albi-Clad, Rev. 0
ECP-12-000803, Evaluation of Suppression System Flow and Pressure Requirements, Rev. 0
ECP-14-000316, Motor Operated Valves 3150 and 3151, Rev. 0

Drawings and Wiring Diagrams
03200-0102, AC Power Distribution Panels one Line Diagram, Rev. 33
03202-0102, 125VDC Power Distribution System One-Line Diagram, Rev. 22
10904-0175, 480V MCC-H Schedule, Rev. 20
10904-0813, Charging Pump 1B Motor Variable Frequency Drive Connection Diagram, Rev. 3
10905-0011, Sht. 1, Switch Development Elementary Wiring Diagram, Rev.10
10905-0071B, Charging Pump B Elementary Wiring Diagram, Rev. 5
10905-0581, PORV Block Valve MOV-516 Elementary Wiring Diagram, Rev. 6
10905-0639, MOV-3150 Circulation Water Pump Discharge Valve Wiring Diagram, Rev. 5
10905-0678, SAFW Pump D Suction Valve MOV-9629B Elementary Wiring Diagram, Rev. 4
10905-0754, PORV 430 Elementary Diagram, Rev. 3
10909-0051, ABELIP & IBELIP Panels DC System Fuse References, Rev. 6
11302-0308, RCS Pressure Instrument Loop Diagram, Rev. 1
11302-0360, Steam Generator Level Instrument Loop Diagram, Rev. 2
11302-0368, Sht. 2, Steam Generator Pressure Instrument Loop Diagram, Rev. 3
21488-0105, Relay Room West End Floor Plan Penetrations Locations, Rev. 8
21488-0110, Sht. A, "A" EDG Room Vault Fire Barrier Arrangement, Rev. 5
21488-0111, "B" EDG Room Fire Barrier Arrangement, Rev. 6
21488-0120, Intermediate Building Clean Side Fire Barrier Arrangement, Rev. 5
21488-0202, Hemyc Wrap Intermediate Building App. R Circuits R1472, R1475, R1468, Rev. 2
21489-0511, Appendix R Instrument Panels Wiring Diagram, Rev. 11
21489-0756, Sht. 2, VHF Radio System, Rev. 2
21946-0071B, Sht. 1, Charging Pump B Control Schematic, Rev. 9
21946-0071B, Sht. 2, Charging Pump B Control Schematic, Rev. 2
21946-0581, PORV Block Valve MOV-516 Control Schematic, Rev. 7
21946-0630, Circulating Water Pump A Discharge Butterfly MOV-3150, Rev. 3

21946-0639, Sht. 1, MOV-3150 Circulation Water Pump Discharge Valve Schematic, Rev. 3
21946-0639, Sht. 2, MOV-3150 Circulation Water Pump Discharge Valve Schematic, Rev. 2
21946-0640, Circulating Water Pump B Discharge Butterfly MOV-3151, Rev. 3
21946-0678, SAFW Pump D Suction Valve MOV-9629B Control Schematic, Rev. 6
21946-0730, Sht. 1, Steam Generator Atmospheric Relief Valve Control Schematic, rev. 5
21946-0730, Sht. 2, Steam Generator Atmospheric Relief Valve Control Schematic, rev. 2
21946-0754, Sht. 1, PORV PCV-430 Control Schematic, Rev. 1
21946-0754, Sht. 2, PORV PCV-430 Control Schematic, Rev. 1
21946-0755, Sht. 1, PORV PCV-431C Control Schematic, Rev. 1
21946-0755, Sht. 2, PORV PCV-431C Control Schematic, Rev. 1
33013-0652, 480V One-Line Wiring Diagram, Rev. 29
33013-1936, Sht. 1, Train B DC Fuses One-Line Diagram, Rev. 12
33013-1936, Sht. 2, Train B DC Fuses One-Line Diagram, Rev. 12
33013-2409, AC Electrical System One-Line Wiring Diagram, Rev. 7
33013-2539, AC System Plant Load Distribution One-Line Wiring Diagram, Rev. 28

Piping and Instrumentation Diagrams
03021-1064, EWR 4941 Pipe/Conduit/Sleeve, Rev. 0
03021-1066, EWR 4941 Non-Rated Fire Barrier Seals, Rev. 0
33013-1231, Sht. 1, Main Steam, Rev. 2
33013-1237, Auxiliary Feedwater, Rev. 69
33013-1238, Standby Auxiliary Feedwater, Rev. 35
33013-1258, Reactor Coolant Pressurizer, Rev.25
33013-1265, Sht. 1, Chemical and Volume Control System Charging, Rev.12
33013-1265, Sht. 2, Auxiliary Bldg. Chemical Volume Control System Charging, Rev. 27
33013-1607, Fire Protection System Yard Loop, Rev. 5
33013-1988, Fire Service Water Supply to Sprinkler Systems and Hose Reel Stations, Rev. 8
33013-1991, Fire Water for Auxiliary, Intermediate, & Containment Buildings, Rev. 21

Large Fires and Explosions Mitigation Strategies Documents
EPIP-1-18, Discretionary Actions for Emergency Conditions, Rev. 02200
ER-AFW.1, Alternate Water Supply to the AFW Pumps, Rev. 00301
ER-AFW.3, Alternate Standby Auxiliary Feedwater, Rev. 00303
ER-CNMT.1, Flooding Containment, Rev. 00003
ER-EDMG.0, Emergency Damage Mitigation Guidelines, Rev. 00304
ER-RWST.1, Alternate Refueling Water Storage Tank Makeup, Rev. 00103
ER-SFP.2, Diverse SFP Makeup and Spray, Rev. 00300
SC-3.15.15, Emergency Fire Equipment Inventory and Inspection, Rev. 09702

System Health Reports
Fire Protection System Health Report, dated 12/31/14
Fire Protection System Health Report, dated 3/31/15

Procedures
51-9089546-001, Nuclear Safety Capability Assessment, Rev. 001A
A-52.12, Non-Functional Equipment Important to Safety, Rev. 07700
A-601.10, Time Critical Action Management Program, Rev. 00302
A-601.13, Fire Protection Appendix R Compensatory Actions, Rev. 10
AP-CR.1, Control Room Inaccessibility, Rev. 02403
AP-SW.2, Loss of Service Water, Rev. 00801
E-0, Reactor Trip or Safety Injection Emergency Operating Procedure, Rev. 04602
ER-D/G.1, Restoring D/Gs, Rev. 01801
ER-D/G.2, Alternate Cooling for Emergency D/Gs, Rev. 02000
ER-FIRE.0, Control Room Response to Fire Alarms and Reports, Rev. 01200
ER-FIRE.1, Alternate Shutdown for Control Complex Fire, Rev. 03500
ER-FIRE.2, Alternate Shutdown for Cable Tunnel Fire, Rev. 03200
ER-FIRE.3, Alternate Shutdown for Aux Building Basement Fire, Rev. 03600
ER-FIRE.5, Alternate Shutdown for Battery Room B Fire, Rev. 02700
ER-FIRE.6, Response to Fire in EDG "B" Vault, Rev. 00303
ER-SH.1, Response to Loss of Screenhouse, Rev. 00201
FPS-15, Fire Door Identification, Inspection and Maintenance, Rev. 02903
FPS-3, Periodic Inspection of Fire Barrier Penetration Seals, Rev. 00102
FPS-7, Velocity Flush of the Fire Water System, Rev. 01501
FR-H.1, Loss of Secondary Heat Sink Emergency Operating Procedure, Rev. 04100
FRP-11.0, Fire Response Plan for Intermediate Bldg. Clean Side Basement, Rev. 01002
FRP-12.0, Fire Response Plan for Intermediate Building Main Steam Header Floor, Rev. 00802
FRP-16.0, Fire Response Plan for Air Handling Room, Rev. 00801
FRP-25.0, Fire Response Plan for EDG Room "B" and Vault, Rev. 00900
GME-00-99-ACFUSES, Replacement or Inspection of AC Fuses, Rev. 01
GME-00-99-DCFUSES, Replacement or Inspection of DC Fuses, Rev. 02
GME-50-02-DB25, Type DB-25 480VAC Air Circuit Breaker Maintenance, Rev. 02400
GME-50-02-DB50, Type DB-50 480VAC Air Circuit Breaker Maintenance, Rev. 02500
GME-50-02-DB75, Type DB-75 480VAC Air Circuit Breaker Maintenance, Rev. 02700
GME-50-02DBSESTUP, DB Breaker Setup, Rev. 01000
M-103, Inspection and Maintenance of Fire Dampers, Rev. 02300
MA-AA-723-325, Molded Case Circuit Breaker Testing, Rev. 13
O-2.2.1, Verification of Locally Operated Components, Rev. 01000
O-20, Operations DC Fuses Replacement, Rev. 00600
OP-AA-102-106, Operator Response Time Program, Rev. 3
OP-AA-201-001, Fire Marshal Tours, Rev. 6
OP-AA-201-003, Fire Drill Performance, Rev. 14
OP-AA-201-004, Fire Prevention for Hot Work Rev. 12
OP-AA-201-005, Fire Brigade Qualification, Rev. 9
OP-CE-201-007, Fire Protection System Impairment Control, Rev. 000
S-12.4, RCS Leakage Surveillance Record Instructions, Rev. 05801
SC-3, Site Contingency Plan - Fire Emergency, Rev. 03903
SC-3.1, Fire Emergency General Information, Rev. 02103
SC-3.1.1, Fire Alarm Response – Fire Brigade Activation, Rev. 17
SC-3.13, Fire Communication, Rev. 13
SC-3.15.15, Emergency Fire Equipment Inventory and Inspection, Rev. 09701
SC-3.16.4.4, Relieving Fire System High Pressure, Rev. 0000

SC-3.2.11, Immediate Action for Screenhouse Fire, Rev. 7
SC-3.3.1, Immediate Fire Notification, Rev. 02101
SC-3.3.2, Off-Site Notification of Fire, Rev. 03900
STP-E-13.26, Testing of Fire Dampers, Rev. 00003
STP-O-12.1, A EDG Verification, Rev. 01700
STP-O-13, Fire Pump Operation and System Alignment, Rev. 00203
STP-O-13.1, Annual Fire Pump Insurance Surveillance Test, Rev. 00303
STP-O-13.1.15.1, Halon System S08 Reset, Rev. 00001
STP-O-13.4, Diesel Driven Portable Pump Test, Rev. 00401
STP-O-13.4.1, B5b Pump Annual Flow Test, Rev. 00105

Fire Fighting Strategies (i.e., Pre-Fire Plans)
33013-2540, Fire Response Plan General Plant Drawing Index and Symbol Legend, Rev. 9
33013-2544, Turbine Bldg. Fire Response Plan, Elev.. 253 ft., Rev. 14
33013-2545, Containment & Intermediate Bldg. Fire Response Plan Elev. 253 ft., Rev. 9
33013-2559, Control Bldg. Fire Response Plan, Rev. 13

Training Documents
A-103.9, Fire Brigade Training, dated 10/7/14
A-103.9, Fire Brigade Training, dated 9/19/14
A-103.9, Fire Brigade Training, dated 9/21/14
A-103.9, Fire Brigade Training, Rev. 03100
FBP01, Emergency Response Training Fire Brigade Program Introduction/Orientation, Rev. 7
FBP14, Building Construction/Awareness, Rev. 7
FBP15, Pre Fire Plans, Rev. 7
Lesson Plan, Auxiliary Feedwater Systems
Lesson Plan, Chemical and Volume Control System
Lesson Plan, Main Steam Systems
Lesson Plan, Pressurizer and Pressurizer Relief Tank
Licensed Operator Requalification Cycle 13-3
Licensed Operator Requalification Cycle 14-1

Fire Brigade Drills, and Critiques
OP-AA-201-003, Fire Drill Record, performed 4/13/15
OP-AA-201-003, Fire Drill Record, performed 5/5/15
OP-AA-201-003, Fire Drill Record, performed 5/12/15
OP-AA-201-003, Fire Drill Record, performed 6/23/15
OP-AA-201-003, Fire Drill Record, performed 7/29/15

Transient Combustible Permits and Evaluations
2015-021, Transient Combustible Permit, dated 7/28/15
2015-022, Transient Combustible Permit, dated 8/18/15

Hot Work and Ignition Source Permits
15-0039, Hot Work Permit, dated 4/22/115
15-0043, Hot Work Permit, dated 6/1/15
15-0050, Hot Work Permit, dated 7/1/15
15-0057, Hot Work Permit, dated 8/10/15
15-0061, Hot Work Permit, dated 8/25/15

Completed Tests and Surveillances
0-2.2.1, Verification of Locally operated Components, performed 4/28/14
1078, Total Flooding of Room with Halon 301, performed 5/21/84
A-52.12, Fire Suppression Detection and Fire Barriers, performed 9/13/15
A-52.12, Fire Suppression Detection and Fire Barriers, performed 8/16/15
FPS-2.1, Control and Verification of Fire Barriers, performed 12/16/09
FPS-3, Fire Barrier Penetration Seal Periodic Inspection, performed 6/17/15
FPS-3, Fire Barrier Penetration Seal Periodic Inspection, performed 12/8/12
FPS-3, Fire Barriers Penetration Seal Periodic Inspection, performed 12/15/14
FPS-7, Velocity Flush of the Fire Water System, performed 4/24/15
FPS-7, Velocity Flush of the Fire Water System, performed 8/30/12
OP-AA-201-004, Sample of Hot Work Permits, performed 9/24/15
SC-3.15.15, Emergency Fire Equipment Inventory and Inspection, performed 6/26/15
SC-3.15.15, Emergency Fire Equipment inventory and Inspection, performed 6/22/15
SC-3.15.3, Portable Extinguisher Inspection, performed 9/4/15
STP-E-13.26, Fire Damper Testing, performed 10/22/14
STP-E-13.3, Fire Pump Electrical Equipment Surveillance, performed 9/2/15
STP-E-13.3, Fire Pump Electrical Equipment Surveillance, performed 6/1/15
STP-E-13.3, Fire Pump Electrical Equipment Surveillance, performed 9/2/15
STP-E-13.3, Fire Pump Electrical Equipment Surveillance, performed 7/8/15
STP-O-13, Fire Pump Operation and System Alignment, performed 5/10/15
STP-O-13, Fire Pump Operation and System Alignment, performed 6/7/15
STP-O-13.1, Annual Fire Pump Insurance Surveillance Test, performed 9/4/14
STP-O-13.1, Annual Fire Pump Insurance Surveillance Test, performed 7/8/15
STP-O-13.4.29, Halon System Testing - Relay/Computer Room Zone S08, performed 11/5/14
STP-O-13.4.29, Halon System Testing Relay/Computer Room Zone S08, performed 11/6/14
TCA-ER-FIRE.1, Time Validations of Time Critical Actions, performed 4/17/15

Condition Reports (* denotes NRC identified during this inspection)

01938885	01962071	02500548	02563623*
01948135	02385278	02508818	02563627*
01948161	02387834	02515776	02563631*
01949062	02389388	02543288	02563632*
01949067	02389852	02546693	CR-2011-005466
01950194	02389862	02546696	CR-2011-005716
01951298	02389878	02546698	CR-2013-000472
01954809	02389883	02547272	CR-2013-004063
01955032	02397246	02549031	CR-2013-005405
01955389	02397252	02549800	CR-2013-005474
01955468	02409031	02550286*	CR-2013-006945
01955514	02409107	02550927*	CR-2014-001170
01956007	02414893	02556418*	CR-2014-001260
01957237	02426283	02556486	CR-2014-001346
01957417	02461475	02560739*	CR-2014-004505
01961416	02461845	02560930	CR-2014-004929
01961525	02499387	02563620*	

Work Orders

C20603197	C91769657	C92473193	20150106
C90676054	C92100545	C92493270	20150925
C90676187	C92267731	C92511918	20401552
C90676325	C92331569	C92559184	20401553
C91121903	C92360287	C92719674	20401555
C91268659	C92379499	C92762475	20602956
C91284154	C92425335	20100678	
C91302403	C92425413	20140624	

Vendor Manuals

VTD-C1436-4701, CD Technologies Power Solution High Rate Max, Rev. 000
VTD-C1436-4702, CD Technologies Power Solution High Rate Series, Rev. 000

Industry Standards

NEI 00-01, Post Fire Safe Shutdown Circuit Analysis, Rev. 3
NEI 06-12, B.5.b Phases 2 & 3 Submittal Guidance, Rev. 2 (ML070090060)

Miscellaneous Documents

LER 05000244/2014-002, Unanalyzed Condition due to postulated hot short fire event involving DC control circuits affecting multiple fire areas, Rev. 0
PRAER-G1-2014-001, Evaluation of under-Fused DC Circuits, Rev. 0

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feedwater
AHR	Air Handling Room
APCSB	[NRC] Auxiliary and Power Conversion Systems Branch
BTP	Branch Technical Position
CAP	Corrective Action Program
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CR	Condition Report
DC	Direct Current
EDG	Emergency Diesel Generator
Elev.	Elevation
EPU	Extended Power Uprate
Exelon	Exelon Generation Company, LLC
FA	Fire Area
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
FRP	Fire Response Plan
FZ	Fire Zone
Ginna	R.E. Ginna Nuclear Power Plant, LLC
IMC	[NRC] Inspection Manual Chapter
IP	[NRC] Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	[NRC] Inspection Report
LER	Licensee Event Report
MCC	Motor Control Center
MCC-H	Motor Control Center “H”
MOV	Motor Operated Valve
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records System
PD	Performance Deficiency
PORV	Power Operated Relief Valve
PRA	Probabilistic Risk Assessment
RCS	Reactor Coolant System
SAFW	Standby Auxiliary Feedwater
SDP	[NRC] Significance Determination Process
SW	Service Water
UFSAR	Updated Final Safety Analysis Report
V	Volts