



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

February 27, 2015

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2,
TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000373/2014008;
05000374/2014008

Dear Mr. Hanson:

On February 23, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed a Triennial Fire Protection Inspection at your LaSalle County Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on February 23, 2015 with Mr. H. Vinyard and on January 22, 2015 and other 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 personnel.

The NRC inspectors documented one finding of very-low safety significance (Green) in this report. This finding was determined to involve a violation of NRC requirements. However, because of its very-low safety significance, and because the issue was entered into your Corrective Action Program, the NRC is treating the issue as a Non-Cited Violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at LaSalle County Station.

B. Hanson

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's 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/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos. 50 373; 50 374
License Nos. NPF 11; NPF 18

Enclosure:
Inspection Report 05000373/2014008; 05000374/2014008
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000373; 05000374
License Nos: NPF 11; NPF 18

Report Nos: 05000373/2014008; 05000374/2014008

Licensee: Exelon Generation Company, LLC

Facility: LaSalle County Station, Units 1 and 2

Location: Marseilles, IL

Dates: November 3, 2014, through February 23, 2015

Inspectors: A. Dahbur, Senior Reactor Inspector (Lead)
D. Szwarc, Senior Reactor Inspector
R. Winter, Reactor Inspector

Approved By: Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

Inspection Report 05000373/2014008, 05000374/2014008; 11/03/2014 – 01/22/2015; LaSalle County Station, Units 1 and 2; Routine Triennial Fire Protection Baseline Inspection.

This report covers an announced Triennial Fire Protection Baseline Inspection. The inspection was conducted by Region III inspectors. One finding was identified by the inspectors. The finding was considered a Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) regulations. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Cross-cutting aspects were determined using IMC 0310, "Aspects Within the Cross-Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. 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-Revealed Findings and Violations

Cornerstone: Mitigating Systems

- **Green.** The inspectors identified a finding of very-low safety significance (Green) and associated NCV of the LaSalle County Station Operating License for the licensee's failure to ensure that the alternate shutdown capability was independent of the fire area. Specifically, in the event of a fire in the control room, the alternate shutdown capability for 16 motor operated valves (MOVs) associated with the Reactor Core Isolation Cooling (RCIC) may be affected, and may not be available due to lack of breaker fuse coordination. Fire-induced failures could result in tripping valve power supply breakers prior to tripping the control power fuses for several motor operated valves, thereby, potentially impairing the operation of RCIC from the Remote Shutdown Panel (RSP). The licensee entered this issue into their Corrective Action Program and established compensatory measures, and added steps to the safe shutdown procedures to reset the affected breakers if needed. In addition, the licensee intended to perform plant modifications to replace or revise existing breakers settings to correct the issue.

The inspectors determined that the issue was more than minor, because fire induced circuits could impair the operation of RCIC and complicated shutdown of the plant in the event of a fire in the control room. The finding affected the Mitigating Systems Cornerstone. The finding was determined to be of very-low safety significance based on a detailed risk-evaluation. This finding was not associated with a cross-cutting aspect because the finding was not representative of the licensee's current performance. (Section 1R05.6.b)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events and Mitigating Systems

1R05 Fire Protection (71111.05T)

The purpose of the Fire Protection Triennial Baseline Inspection was to conduct a design-based, plant-specific, risk-informed, onsite inspection of the licensee's Fire Protection Program's defense-in-depth elements used to mitigate the consequences of a fire. The Fire Protection Program shall extend the concept of defense-in-depth to fire protection in plant areas important to safety by:

- preventing fires from starting;
- rapidly detecting, controlling and extinguishing fires that do occur;
- providing protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent the safe-shutdown of the reactor plant; and
- taking reasonable actions to mitigate postulated events that could potentially cause loss of large areas of power reactor facilities due to explosions or fires.

The inspectors' evaluation focused on the design, operational status, and material condition of the reactor plant's Fire Protection Program, post-fire safe shutdown systems, and B.5.b mitigating strategies. The objectives of the inspection were to assess whether the licensee had implemented a Fire Protection Program that: (1) provided adequate controls for combustibles and ignition sources inside the plant; (2) provided adequate fire detection and suppression capability; (3) maintained passive fire protection features in good material condition; (4) established adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems or features; (5) ensured that procedures, equipment, fire barriers and systems exist so that the post-fire capability to safely shut down the plant was ensured; (6) included feasible and reliable operator manual actions when appropriate to achieve safe shutdown; and (7) identified fire protection issues at an appropriate threshold and ensured these issues were entered into the licensee's Problem Identification and Resolution Program.

In addition, the inspectors' review and assessment focused on the licensee's post-fire safe shutdown systems for selected risk-significant fire areas. The inspectors' emphasis was placed on determining that the post-fire safe shutdown capability and the fire protection features were maintained free of fire damage to ensure that at least one post-fire safe shutdown success path was available. The inspectors' review and assessment also focused on the licensee's B.5.b related license conditions and the requirements of Title 10, *Code of Federal Regulations* (CFR) 50.54 (hh)(2). The inspectors' emphasis was to ensure that the licensee could maintain or restore core cooling, containment, and spent fuel pool cooling capabilities utilizing the B.5.b mitigating strategies following a loss of large areas of power reactor facilities due to explosions or fires. Documents reviewed are listed in the Attachment to this report.

The fire zones and B.5.b mitigating strategies selected for review during this inspection are listed below and in Section 1R05.13. The fire zones selected constituted four

inspection samples and the B.5.b mitigating strategies selected constituted two inspection samples, respectively, as defined in Inspection Procedure 71111.05T.

Fire Zone	Description
4D-2	Unit 2 – Cable Spreading Room
4E3-1	Unit 1 – Aux. Electric Equipment Room
2F-2	Unit 1 – Elevation 740’ North Side Reactor Building
4E4-1	Unit 2 – Division I Cable Spreading Riser Room

.1 Protection of Safe Shutdown Capabilities

a. Inspection Scope

For each of the selected fire areas, the inspectors reviewed the fire hazards analysis, safe shutdown analysis (SSA), and supporting drawings and documentation to verify that safe shutdown capabilities were properly protected.

The inspectors also reviewed the licensee’s design control procedures to ensure that the process included appropriate reviews and controls to assess plant changes for any potential adverse impact on the Fire Protection Program and/or post-fire SSA and procedures.

b. Findings

No findings were identified.

.2 Passive Fire Protection

a. Inspection Scope

For the selected fire areas, the inspectors evaluated the adequacy of fire area barriers, penetration seals, fire doors, electrical raceway fire barriers, and fire rated electrical cables. The inspectors observed the material condition and configuration of the installed barriers, seals, doors, and cables. The inspectors reviewed approved construction details and supporting fire tests. In addition, the inspectors reviewed license documentation, such as U.S. Nuclear Regulatory Commission (NRC) Safety Evaluation Reports, and deviations from NRC regulations and the National Fire Protection Association (NFPA) standards to verify that fire protection features met license commitments.

The inspectors walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries (including walls, fire doors, and fire dampers) to ensure they were appropriate for the fire hazards in the area.

The inspectors reviewed the installation, repair, and qualification records for a sample of penetration seals to ensure the fill material was of the appropriate fire rating and that the installation met the engineering design.

b. Findings

No findings were identified.

.3 Active Fire Protection

a. Inspection Scope

For the selected fire areas, the inspectors evaluated the adequacy of fire suppression and detection systems. The inspectors observed the material condition and configuration of the installed fire detection and suppression systems. The inspectors reviewed design documents and supporting calculations. In addition, the inspectors reviewed license basis documentation, such as, NRC Safety Evaluation Reports, deviations from NRC regulations, and NFPA standards to verify that fire suppression and detection systems met license commitments.

b. Findings

No findings were identified.

.4 Protection from Damage from Fire Suppression Activities

a. Inspection Scope

For the selected fire areas, the inspectors verified that redundant trains of systems required for hot shutdown would not be subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems including the effects of flooding. The inspectors conducted walkdowns of each of the selected fire areas to assess conditions such as the adequacy and condition of floor drains, equipment elevations, and spray protection.

b. Findings

No findings were identified.

.5 Alternative Shutdown Capability

a. Inspection Scope

The inspectors reviewed the licensee's systems required to achieve alternative safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions. The inspectors also focused on the adequacy of the systems to perform reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions.

The inspectors conducted selected area walkdowns to determine if operators could reasonably be expected to perform the alternate safe shutdown procedure actions and that equipment labeling was consistent with the alternate safe shutdown procedure. The review also looked at operator training as well as consistency between the operations shutdown procedures and any associated administrative controls.

b. Findings

No findings were identified.

.6 Circuit Analyses

a. Inspection Scope

The inspectors verified that the licensee performed a post-fire SSA for the selected fire areas, and the analysis appropriately identified the structures, systems, and components important to achieving and maintaining safe shutdown. Additionally, the inspectors verified that the licensee's analysis ensured that necessary electrical circuits were properly protected and that circuits that could adversely impact safe shutdown due to hot shorts, shorts to ground, or other failures were identified, evaluated, and dispositioned to ensure spurious actuations would not prevent safe shutdown.

The inspectors' review considered fire and cable attributes, potential undesirable consequences, and common power supply/bus concerns. Specific items included the credibility of the fire threat, cable insulation attributes, cable failure modes, and actuations resulting in flow diversion or loss of coolant events.

The inspectors also reviewed cable raceway drawings for a sample of components required for post-fire safe shutdown to verify that cables were routed as described in the cable routing matrices.

The inspectors verified for cables that are important to safe shutdown, but not part of the success path, and that do not meet the separation/protection requirements of Section III.G.2 of 10 CFR Part 50, Appendix R, that the circuit analysis considered the cable failure modes. In addition, the inspectors verified that the licensee has either: (1) determined that there is not a credible fire scenario (through fire modeling); (2) implemented feasible and reliable manual actions to assure safe shutdown capability; or (3) performed a circuit fault analysis demonstrating no potential impact on safe shutdown capability exists.

b. Findings

Failure to Ensure Circuits associated with Alternate Shutdown Capability Free of Fire-induced Damage

Introduction: The inspectors identified a finding of very-low safety significance (Green) and associated Non-Cited Violation (NCV) of the LaSalle County Station Operating License for the licensee's failure to ensure that the alternate shutdown capability was independent of the control room. Specifically, in the event of a fire in the control room, the alternate shutdown capability for 16 valves associated with the Reactor Core Isolation Cooling (RCIC) may be affected and not available due to lack of breaker and fuse coordination. Fire-induced failures could result in tripping valve power supply breakers prior to tripping the control power fuses for several motor operated valves (MOVs), thereby, potentially impairing the operation of RCIC from the Remote Shutdown Panel (RSP).

Description: The LaSalle County Station SSA credited the RCIC system for reactor water makeup and decay heat removal for the alternate shutdown method from the RSP.

In the event of a fire in the control room (Fire Zone 4C1) that required evacuation of the control room, operation procedures LOA-FX-101 and LOA-FX-201 for Unit 1 and Unit 2, respectively, included steps for the operators to place RCIC Remote Shutdown Transfer Switches in the EMERGENCY position at the RSP. Transferring the switches into the EMERGENCY position ensured that the alternate shutdown capability was independent of the control room fire area. The transfer would isolate the control circuits for the RCIC valves from the control room and connected different set of control fuses at the RSP for each valve. The new set of control fuses were fed from a separate 250 ventilation duct chase (VDC) power source.

The inspectors reviewed the schematics diagrams for several RCIC valves to verify adequate circuit separation existed for the alternate shutdown capability from the RSP. During the review of MOV 1E51-F022, RCIC Test Bypass to Condensate Storage Tank, schematic diagram 1E-1-4226AS showed that the main breaker supplied from 250 VDC Motor Control Center (MCC) 121Y was a 7 amp breaker, while the control circuit fuse associated with the valve's control room circuits was 10 amp. The 7 amp main circuit breaker was also designed to supply the valve power circuit to the MOV itself. The design of the alternate shutdown panel relied on the 10 amp fuse to isolate a fault in the event of a fire in the control room that could damage control circuits to the valve. When the transfer switch at the RSP is placed in the EMERGENCY position, a different set of control fuses provides the capability to control the valve from the RSP. The inspectors were concerned that in the event of a control room fire, fire-induced faults on the control circuits could cause the associated 7 amp, 250 VDC breaker to trip upstream of the 10 amp protective fuse. If the feed breaker tripped before the control room protective fuse opened, the associated MOV would lose power for operation from the RSP until the breaker was reset. Existing procedures did not include actions to reset the affected breakers.

After the inspectors identified the concern, the licensee completed a preliminary review of all 28 affected RCIC valves and RCIC instrumentation located on the RSP and identified a total of 16 valves, 8 per unit, which had breaker/fuse coordination issues. The magnetic trip settings of the breakers were less than the calculated short circuit current available at the control room. The affected valves were as follows:

- MOVs 1E51-F010 and 2E51-F010, "RCIC Pump Suction from Condensate Storage Tank (CST)," for Unit 1 and Unit 2 respectively. These valves are the normal suction source and they are normally open during normal plant operation. The feeder breakers were rated at 3 amps with magnetic trip settings at 21 amps.
- MOVs 1E51-F022 and 2E51-F059, "RCIC Test Bypass to Condensate Storage Tank," for Unit 1 and Unit 2 respectively. These valves are normally closed and are used to throttle RCIC pressure during quarterly testing in the CST to CST mode. The feeder breakers were rated at 7 amps with magnetic trip settings at 29.4 amps.
- MOVs 1E51-F046 and 2E51-F046, "RCIC Turbine Cooling Water Supply Valve," for Unit 1 and Unit 2 respectively. These valves are normally closed when RCIC is not in operation. They provided lube oil cooling for the RCIC turbine. The feeder breakers were rated at 3 amps with magnetic trip settings at 21 amps.
- MOVs 1E51-F031, and 2E51-F031, "RCIC Pump Suction from Suppression Chamber," for Unit 1 and Unit 2 respectively. These valves are the normally closed suction source from the suppression pool. An automatic signal opens the

valves on low CST level. The feeder breakers were rated at 3 amps with magnetic trip settings at 21 amps.

- MOVs 1E51-F360, and 2E51-F360, "RCIC Turbine Trip and Throttle valve," for Unit 1 and Unit 2 respectively. These valves are normally open trip and throttle valve. The feeder breakers were rated at 3 amps with magnetic trip settings at 16.8 amps.
- MOVs 1E51-F068, and 2E51-F068, "RCIC Turbine Exhaust to Suppression Pool," for Unit 1 and Unit 2 respectively. These valves are normally open valves. The feeder breakers were rated at 3 amps with magnetic trip settings at 25.2 amps.
- MOVs 1E51-F069 and 2E51-F069, "RCIC Vacuum Pump Discharge Valve," for Unit 1 and Unit 2 respectively. These valves are normally open valves for the barometric condenser vacuum pump. The feeder breakers were rated at 3 amps with magnetic trip settings at 16.8 amps.
- MOVs 1E51-F080 and 2E51-F080, "RCIC Vacuum Breaker Line Isolation Valve," for Unit 1 and Unit 2 respectively. These valves are normally open valves. The feeder breakers were rated at 3 amps with magnetic trip settings at 21 amps.

Upon discovery, the licensee issued standing order 14-09, "NRC Identified 250 VDC Breakers Fuse Coordination," and established immediate compensatory actions and revised the shutdown procedures to reset the affected breakers if required. The licensee documented this issue into their Corrective Action Program (CAP) as AR 2421318, "250 VDC Breaker/Fuse Coordination," and followed it with a subsequent update in AR 2424674. In order to resolve this issue, the licensee intended to perform plant modifications to replace or revise existing breaker settings to provide adequate breakers/fuses coordination. In addition, on December 12, 2014, the licensee notified the NRC per Event Notification EN 50675 per 10 CFR 50.72(ii)(B) for an unanalyzed condition related to this issue.

Analysis: The inspectors determined that the licensee's failure to ensure that the alternate shutdown capability was independent of the control room was contrary to LaSalle County Station Operating License conditions for the Fire Protection Program and was a performance deficiency. Specifically, in the event of a fire in the control room, the licensee failed to ensure that the alternate shutdown capability for 16 MOVs associated with RCIC would not be affected by fire damage that could impair the operation of the valves from the RSP due to lack of electrical coordination between the valves breakers and control circuit fuses.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Protection Against External Events (Fire), and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, in the event of a fire in the control room, fire-induced failures could result in tripping valve power supply breakers prior to tripping the control power fuses for 16 MOVs that could impair the operation of RCIC from the RSP without actions to reset breakers. RCIC is the credited alternate shutdown system for safely shutting down the plant in the event of a fire in the control room.

The inspectors evaluated the finding in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Attachment 0609.04, "Initial

Characterization of Findings,” Table 3, “Significance Determination Process (SDP) Appendix Router.” In Question 2 of Section E, “Fire Protection,” the inspectors answered “Yes” to the screening question “Does the finding ... (3) ... affect the ability to reach and maintain safe shutdown conditions in case of a fire”? In accordance with IM 0609, Attachment 2, “Degradation Rating Guidance,” the inspectors assigned a high-degradation factor to the finding because the finding severely impacted operator performance of safe shutdown operations. Using IMC 0609, Appendix F, Attachment 1, “Fire Protection Setdown Pool (SDP) Phase 1 and 2 Worksheet,” the inspectors assigned a Duration of Degradation Factor to 1.0 because the finding existed for greater than 30 days, an Area Fire Frequency (F) to $2.5E-03$ for control room fire and a Non-Suppression Probability (S) of (0.1). Based on these data, the calculated Delta Core Damage Frequency (ΔCDF) was $2.5E-4$ and therefore, the finding could not be screened out per Phase 1. The inspectors completed a Phase 2 worksheet and assigned a safe shutdown Unavailability Factor of 1.0 because the finding severely impacted the safe shutdown component credited for safe shutdown. Using a Fire Frequency value of $3.3E-5$ which based on 2009 LaSalle Fire Probabilistic Risk Assessment data for a RCIC panel fire instead of a generic Fire Frequency value as specified in Phase 1 of the SDP, the new calculated ΔCDF value was $3.3E-6$ and therefore, the finding could not be screened out per Phase 2 either. Therefore the Senior Reactor Analysts (SRAs) performed a detailed risk-evaluation using IMC 0609, Appendix F, “Fire Protection Significance Determination Process,” and other documents as described below.

The SRAs performed a detailed risk evaluation by refining the manual non-suppression probability that was used in the Phase 2 SDP evaluation. Using the manual non-suppression curves in NUREG/CR-6850 Supplement 1, “Fire Probabilistic Risk Assessment Methods Enhancements,” the SRAs assumed that a control room fire originating in the RCIC panel lasting at least 15 minutes would be large to require control room evacuation due to habitability concerns and require use of the RSP. The non-suppression probability for a control room fire at 15 minutes was estimated to be $7E-3$. The frequency of an unsuppressed main control room fire in the RCIC panel leading to control room evacuation is estimated as $2.31E-7/yr$. Since this result is less than the $1.0E-6/yr$ threshold for a finding of very low safety significance (Green), no consideration of the ability to recover the RCIC function was necessary. The ΔCDF is $2.31E-7/yr$ and the dominant core damage sequence is a fire in the RCIC panel in the main control room leading to control room evacuation and the failure to recover the RCIC system.

The inspectors did not identify a cross-cutting aspect associated with this finding, because the finding was not representative of the licensee’s current performance.

Enforcement: License condition 2.C.25 and 2.C.15 of the LaSalle County Station, Unit 1 and Unit 2 Operating Licenses, respectively, requires, in part, that the licensee implement and maintain all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for LaSalle County Station, and as approved in NUREG-0519, “Safety Evaluation Report,” dated March 1981 through Supplement No. 8 and all associated amendments. The license conditions also indicates that the licensee may make changes to the approved fire protection program without prior approval of the NRC only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

Section 9.5.6.1, "Control Room," stated that the applicant has installed an emergency shutdown panel so that alternate shutdown capability existed independent of the control room.

Section H.3.4.3, "Fire Hazard Analysis for Control Room – Fire Zone 4C1," stated that the auxiliary equipment room contains the RSP which has the control necessary for a safe shutdown in the event of damage or evacuation of the main control room. All remote shutdown circuits are electrically isolated from the main control room and, therefore, are unaffected by a loss of the control room circuits.

Contrary to the above, on December 12, 2014, the licensee failed to ensure that the alternate shutdown capability and its associated circuits were independent from the control room and unaffected by fire in the area. Specifically, the licensee failed to ensure that circuits for 16 MOVs associated with the RCIC system which is relied upon to safely shutdown the plant from the RSP in the event of a fire in the control room were not adversely affected by a fire. Fire-induced failures could result in tripping valve power supply breakers prior to opening the control power fuses for 16 MOVs. This condition would impair the operation of RCIC from the RSP.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very-low safety significance and was entered into the licensee's CAP as AR 2421318 and AR 2424674. The licensee revised the procedure during the inspection with the correct valve location. (NCV05000373/2014008-01; 05000374/2014008-01, Failure to Ensure Circuits associated with Alternate Shutdown Capability Free of Fire-induced Damage).

.7 Communications

a. Inspection Scope

The inspectors reviewed, on a sample basis, the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire brigade duties. The inspectors verified that plant telephones, page systems, sound powered phones, and radios were available for use and maintained in working order. The inspectors reviewed the electrical power supplies and cable routing for these systems to verify that either the telephones or the radios would remain functional following a fire.

b. Findings

No findings were identified.

.8 Emergency Lighting

a. Inspection Scope

The inspectors performed a plant walkdown of selected areas in which a sample of operator actions would be performed in the performance of alternative safe shutdown functions. As part of the walkdowns, the inspectors focused on the existence of sufficient emergency lighting for access and egress to areas and for performing necessary equipment operations. The locations and positioning of the emergency lights

were observed during the walkdown and during review of manual actions implemented for the selected fire areas.

b. Findings

No findings were identified.

.9 Cold Shutdown Repairs

a. Inspection Scope

The inspectors reviewed the licensee's procedures to determine whether repairs were required to achieve cold shutdown, and to verify that dedicated repair procedures, equipment, and material to accomplish those repairs were available onsite. The inspectors determined that the licensee did not have any cold shutdown repairs.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The inspectors conducted a review to verify that 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 inspectors also conducted a review of the adequacy of short term compensatory measures to compensate for a degraded function or feature until appropriate corrective actions were taken.

b. Findings

No findings were identified.

.11 Review and Documentation of Fire Protection Program Changes

a. Inspection Scope

The inspectors reviewed changes to the approved Fire Protection Program to verify that the changes did not constitute an adverse effect on the ability to safely shutdown. The inspectors also reviewed the licensee's design control procedures to ensure that the process included appropriate reviews and controls to assess plant changes for any potential adverse impact on the Fire Protection Program and/or post-fire SSA and procedures.

b. Findings

No findings were identified.

.12 Control of Transient Combustibles and Ignition Sources

a. Inspection Scope

The inspectors reviewed the licensee'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 fire hazards analysis. The inspectors performed plant walkdowns to verify that transient combustibles and ignition sources were being implemented in accordance with the administrative controls.

b. Findings

No findings were identified.

.13 B.5.b Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's preparedness to handle large fires or explosions by reviewing selected mitigating strategies. This review ensured that the licensee continued to meet the requirements of their B.5.b related license conditions and 10 CFR 50.54(hh)(2) by determining that:

- Procedures were being maintained and adequate;
- Equipment was properly staged, maintained, and tested;
- Station personnel were knowledgeable and could implement the procedures; and
- Additionally, inspectors reviewed the storage, maintenance, and testing of B.5.b related equipment.

The inspectors reviewed the licensee's B.5.b related license conditions and evaluated selected mitigating strategies to ensure they remain feasible in light of operator training, maintenance/testing of necessary equipment and any plant modifications. In addition, the inspectors reviewed previous inspection reports for commitments made by the licensee to correct deficiencies identified during performance of temporary instruction TI 2515/171 or subsequent performances of these inspections.

The B.5.b mitigating strategies selected for review during this inspection are listed below. The offsite and onsite communications, notifications/emergency response organization activation, initial operational response actions and damage assessment activities identified in Table A.3 1 of Nuclear Energy Institute (NEI) 06-12, "B.5.b Phase II and III Submittal Guidance," Revision 2, are evaluated each time due to the mitigation strategies' scenario selected.

NEI 06-12, Revision 2, Section	Licensee Strategy (Table)
2.2	Spent Fuel Pool Internal Makeup
3.4.8	Manually Opening Containment Vent Line

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

The inspectors reviewed the licensee's CAP procedures and samples of corrective action documents to verify that the licensee was identifying issues related to the Fire Protection Program at an appropriate threshold and entering them in the CAP. The inspectors reviewed selected samples of condition reports, design packages, and fire protection system non-conformance documents.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. H. Vinyard, Mr. P. Karaba, and other members of the licensee's staff on February 23, 2015, and on January 22, 2015, respectively. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Karaba, Site Vice-President
H. Vinyard, Plant Manager
J. Kowalski, Engineering Manager
K. Aleshire, Corporate Emergency Preparedness Manager
V. Cwietniewicz, Corporate Emergency Preparedness Manager
M. Jesse, Corporate Regulatory Assurance Manager
G. Ford, Regulatory Assurance Manager
J. Houston, Nuclear Oversight Manager
J. Moser, Radiation Protection Manager
M. Hayworth, Emergency Preparedness Manager
T. Dean, Operations Training Manager
D. Wright, NRC Examination Coordinator
L. Blunk, Regulatory Assurance
S. Shields, Regulatory Assurance
B. Hilton, Design Manager
A. Baker, Dosimetry Specialist
J. Bauer, Training Director
M. Taylor, Corporate Fire Protection
T. Dean, Operations Training Manager

U.S. Nuclear Regulatory Commission

D. Lords, Acting Senior Resident Inspector
J. Robbins, Resident Inspector
L. Kozak, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000373/2014008-01; 05000374/2014008-01	NCV	Failure to Ensure Circuits associated with Alternate Shutdown Capability Free of Fire-induced Damage (Section 1R05.6.b)
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LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

CALCULATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
135571	Hydraulic Calculations for Cable Spreading Room, Unit 2	December 8, 1983

CORRECTIVE ACTION PROGRAM DOCUMENTS ISSUED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
AR 2413984	NRC Identified – LOA-FC-101(201) Enhancement During B.5.B Walkdown	November 18, 2014
AR 2419663	NRC Identified – Minor Housekeeping Issues in U-2 Cable Spreading Room	December 02, 2014
AR 2419705	NRC Identified – Div 3 Cable 2HP050 Has a DIV 2 Identifier Tape	December 2, 2014
AR 2420360	250VDC System – Breaker Coordination (NRC Fire Protection)	December 3, 2014
AR 2420811	NRC Identified – Non-App R/Non BOP ELBP Trickle Charge Light is Out	December 4, 2014
AR 2420526	NRC Identified – 2" X 2" Piece of Fire Proof Missing in U2 CSR	December 4, 2014
AR 2420521	NRC Identified – Review LOS-FX-A1 Procedure Revision Check Step For Enhancement	December 4, 2014
AR 2421062	NRC ID'D: Plant Design Does Not Appear to Follow SER	December 5, 2014
AR 2421068	6" X 2" Piece of Fireproofing Missing – Unit 1 Division 2 SWGR	December 05, 2014
AR 2421318	250 VDC Breaker – Fuse Coordination	December 05, 2014
AR 2424674	250 VDC Breaker Fuse Coordination (Update)	December 12, 2014

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
AR 1455306	Smoke Detector 0XY-1-37-14 (1XY-FP3714)	December 22, 2014
AR 825782	NRC Identified Potential B.5.b Program Enhancements	October 2, 2008
AR 1107674	Over Lab Deluge Valve Actuated	August 30, 2010
AR 1829457	Cable Areas Above Lab Sprinkler Actuated	September 6, 2014
AR 1154738	Warehouse 1 FP Pipe Split Open	December 21, 2010

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
AR 1585638	Use of WIFI Cameras for Fire Watch	November 15, 2013
AR 2383040	Door 233 Needs Replaced	September 18, 2014
AR 846788	NRC FP Triennial: DFP Start Sequencing, Timing	November 18, 2008

DRAWINGS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
1E-2-3667	Cable Pan Routing Aux Bldg Elev. 749'-0" Columns 15 - 18	Revision M
1E-0-3932	Fire Detection System Floor Elev 677' 0" 749'0" and 843'6"	Revision K
Viking Dwg 15	Cable Spreading Rooms Supervised Preaction Systems	Revision 10
1E-0-3933K	Fire Detection System Floor Elev 740' 0"	Revision A
1E-0-3933L	Fire Detection System Floor Elev 740' 0"	Revision A
1E-0-3930G	Fire Detection System Floor Elev 786' 6"	Revision A
M-1389	Auxiliary Bay Ventilation And Air Conditioning System EL. 731' – 0"	Revision AD
119725	Drawing for Door 855	May 20, 1981
125138	Drawing for Door 615	January 28, 1983
1E-0-3073	Electrical Installation Fire-Stop & Fire-Barrier Details	Revision H
1E-2-3665	Cable Pan Routing Auxiliary Building Plan Elevation 731'-0" Columns 15-18 and J-R	Revision O
1E-2-3647	Fire-Barrier Seal Tabulation Auxiliary Building	Revision S
119725	Drawing for Door 855	May 20, 1981
1E-1-4000EC	Key Diagram – 250V DC MCC 121Y	Revision S
1E-1-4201AE	Schematic Diagram – Auto Depressurization System NB Part 5	Revision Z
1E-1-4201AC	Schematic Diagram – Auto Depressurization System NB Part 3	Revision AB
M-101	P&ID Reactor Core Isolation Coolant (R.C.I.C)	Revision BH

PROCEDURES

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
LES-FP-05	Preaction Sprinkler/Spray Systems Ionization Smoke Detector Test	Revision 30
LGA-VQ-02	Emergency Containment Vent	Revision 20
LMS-ZZ-03	Inspection of Fire Doors Separating Safety Related Fire Areas	Revision 16
LOA-FC-101	Unit 1 Fuel Pool Cooling System/Reactor Cavity Level Abnormal	Revision 21

PROCEDURES

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
LOA-FP-101	Unit 1 Fire Protection System Abnormal	Revision 26
LOA-FX-101	Unit 1 Safe Shutdown With A Fire In The Control Room OR Aux. Electric Equipment Room (AEER)	Revision 26
LOA-FX-201	Unit 2 Safe Shutdown With A Fire In The Control Room OR AEER	Revision 27
LOA-SY-003	Extreme Damage Mitigation Guideline	Revision 13
LOS-CO-Q1	CO2 Flow Path Valve Position Check	Revision 5
LOS-FP-R6	Preaction Spray Systems Functional Test	Revision 14
LOS-FX-A1	Safe Shutdown Support Equipment Inventory Verification	Revision 13
LOS-SY-SRI	B.5.b Mitigating Strategies Equipment Surveillance	Revision 21
MA-AA-723-350	Emergency Lighting Battery pack Quarterly Inspection	Revision 13
OP-AA-201-004	Fire Prevention for Hot Work	Revision 12
OP-AA-201-008	Pre-Fire Plan Manual	Revision 3
OP-AA-201-009	Control of Transient Combustible Material	Revision 13
OP-MW-201-007	Fire Protection System Impairment Control	Revision 7
SA-AA-122	Handling and Storage of Compressed Gas Cylinders / Portable Tanks and Cryogenic Containers / Dewars	Revision 12

OTHER DOCUMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
FZ 4E3	Aux Bldg 731'-0" Elev U1 Division 2 Essential Switchgear Room	Revision 0
EC 367684	Evaluate the Hydrogen Cylinder Installation Associated with the Containment Hydrogen-Oxygen Monitoring System	Revision 0
EC 389603	MSO Shorting Switch for SRVs F013H, K, and P in Case of Remote Shutdown Panel (RSP) Fire	Revision 2
	LaSalle County Station Unit 1 and 2 Amendment No. 23 to the Final Safety Analysis Report (FSAR)	August 25, 1977
LOD 81-40-14	Letter from L.O. DelGeorge (Commonwealth Edison) to B.J. Youngblood (NRC) Subject: LaSalle County Station Unit 1 & 2, Resolution of Power Systems Branch Questions	February 10, 1981
	Letter from L.O. DelGeorge (Commonwealth Edison) to A. Schwencer (NRC) Subject: LaSalle County Station Unit 1 and 2 Response to Informal Questions Related to Fire Protection	May 21, 1981

OTHER DOCUMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
NUREG-0519-SUP-N1	Operation of LaSalle County Station Units 1 and 2, Commonwealth Edison Company Supplement No. 1	June 1981
	Letter from Commonwealth Edison to A. Schwencer (NRC) Subject: LaSalle County Station Unit 1 and 2 Recommended Errata to NUREG-0519 Fire Protection Program (SER Sect. 9.5)	September 28, 1981

Work Orders

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
01376556 01	LOS-FP-R6 U-2 Cable Spreading Room SPKLER Funct Test Sect E.2	April 3, 2014
01614119 01	U-2 Cable Spreading Room Sprinkler Sys Chan Fun Test	March 12, 2014
01719502 01	Safe Shutdown (App R) DC Emergency Light Inspection (ATT 2A)	June 27, 2014
01721875 01	Safe Shutdown (App R) DC Emergency Light Inspection (ATT 2B)	July 2, 2014
01740340 01	Safe Shutdown (App R) DC Emergency Light Inspection (ATT 1B)	August 29, 2014
01741368 01	Safe Shutdown (App R) DC Emergency Light Inspection (ATT 1A)	May 23, 2014
01509101 01	Fire Suppression System 0B Pressure	August 1, 2013

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
CST	Condensate Storage Tank
IMC	Inspection Manual Chapter
MCC	Motor Control Center
MOV	Motor Operated Valves
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records
RCIC	Reactor Core Insolation Cooling
RSP	Remote Shutdown Panel
SDP	Significance Determination Process
SRA	Senior Reactor Analysts
SSA	Safe Shutdown Analysis
VDC	Volts Direct Current

B. Hanson

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Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos. 50 373; 50 374
License Nos. NPF 11; NPF 18

Enclosure:
Inspection Report 05000373/2014008; 05000374/2014008
w/Attachment: Supplemental Information

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