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

December 1, 2016

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

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION
NOTIFICATION OF CONDUCT OF A TRIENNIAL FIRE PROTECTION
BASELINE INSPECTION

Dear Mr. Hanson:

The purpose of this letter is to notify you that U.S. Nuclear Regulatory Commission (NRC) staff will conduct a triennial fire protection baseline inspection at the Oyster Creek Nuclear Generating Station in March 2017. The inspection team will be composed of personnel from the Region I Office and led by Mr. Eugene DiPaolo. The inspection will be conducted in accordance with Inspection Procedure 71111.05T, the NRC's baseline fire protection inspection procedure.

The schedule for the inspection is as follows:

- Information Gathering Visit March 7 - 9, 2017
- On-Site Inspection Weeks of March 20, 2017 and April 3, 2017

The purpose for the information gathering visit is to obtain information and documentation needed to support the inspection, to become familiar with the station fire protection programs, fire protection features, post-fire safe shutdown capabilities, plant layout, and mitigating strategies to address Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(hh)(2); and obtain plant specific site access training and badging for unescorted access.

An initial list of the documents that the team will review during the conduct of the inspection are listed in Enclosures 1 and 2. The team leader will contact you with any additional specific document requests prior to the information gathering visit. Your cooperation and support during this inspection will be appreciated.

If you have questions concerning this inspection, or the inspection team's information request or logistical needs, please contact Mr. Eugene DiPaolo, Team Leader at (610) 337-6959, or via e-mail at eugene.dipaolo@nrc.gov.

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, under Control Number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

In accordance with 10 CFR 2.390 of the NRC's "Rules and Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC's Public Document Room or from the Publically Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC's Website at http://www.nrc.gov/reading-rm/adams.hmtl (the Public Electronic Reading Room).

Sincerely,

/RA/

Glenn T. Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-219
License No. DPR-16

Enclosures:
1. Fire Protection Program Supporting Documentation
2. Mitigating Strategies Supporting Documentation

cc: Distribution via ListServ

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Distribution: (e-mail)
DDorman, RA
DLew, DRA
MScott, DRP
DPelton, DRP
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JYerokun, DRS
SKennedy, DRP
SShaffer, DRP
MHenrion, DRP
SElkhiamy, DRP
APatel, DRP, SRI
EAndrews, DRP, RI
JDeVries, DRP, AA
EDiPaolo, DRS
GDentel, DRS
JBowen, RI, OEDO
RidsNrrPMOysterCreek Resource
RidsNrrDorlLpl1-2 Resource
ROPreports Resource

DOCUMENT NAME: G:\DRS\Engineering Branch 3\DiPaolo\Oyster Creek TFP\Oyster Creek 90-Day Letter.docx
ADAMS ACCESSION NUMBER: ML16336A106

☑ SUNSI Review		☑ Non-Sensitive	☑ Publicly Available
OFFICE	RI/DRS	RI/DRS	
NAME	GDiPaolo/*GD*	GDentel/*GD*	
DATE	11/30/16	12/01/16	

OFFICIAL RECORD COPY

Fire Protection Program Supporting Documentation

If you have any questions regarding this information request, please contact Mr. DiPaolo, as soon as possible, at (610) 337-6959 or via e-mail at eugene.dipaolo@nrc.gov.

Electronic format on compact disc (CD) or digital versatile disc (DVD) is the preferred media, except where specifically noted. If electronic media is made available via an internet based remote document management system, then the remote document access must allow inspectors to download, save, and print the documents in the NRC's Regional office. Paper records (hard copy) are acceptable. At the end of the inspection, the documents in the team's possession will not be retained.

This document request is based on *typical documents* that a generic plant might have. As such, this generic document request is not meant to imply that any specific plant is required to have all of the listed documents. It is recognized that some documents listed below may not be available for your plant. In addition, the document titles listed below are based on typical industry document names; your plant specific document titles may vary.

I. Information Requested Prior to the Information Gathering Visit

Preferably no later than three weeks prior to the Information Gathering Visit, provide these documents to the inspection team leader in the Region I Office.

A. DESIGN AND LICENSING BASIS DOCUMENTS

A.1 Post-fire Safe Shutdown or Alternative Shutdown Analysis.

A.2 Fire Hazards Analysis.

A.3 Individual Plant Examination for External Events (IPEEE) (Fire Chapter ONLY).

A.4 Fire Probabilistic Risk Assessment (Fire PRA) Summary Document (if available).

C. CLASSIC FIRE PROTECTION

C.1. Pre-fire plans for all fire areas. (Electronic copies)

Based on review of the above documents, the team leader should identify a preliminary list of fire areas being considered for inspection prior to the on-site Information Gathering Visit. During the Information Gathering Visit, or shortly thereafter, the fire areas selected for inspection will be determined.

II. Information Requested during the Information Gathering Visit

On the first day of the Information Gathering Visit, provide these documents to the inspection team:

A. DESIGN AND LICENSING BASIS DOCUMENTS

A.5 Fire Protection Program and/or Fire Protection Plan.

A.6 Design Basis Document for the following:

- Fire Protection System; and
- Post-fire Safe Shutdown or Alternative Shutdown System.

A.7 LIST of applicable National Fire Protection Association (NFPA) codes and standards (i.e., codes of record).

A.8 LIST of deviations from NFPA codes of record.

A.9 NFPA Compliance Review Report (if available).

A.10 Report or evaluation that compares the fire protection program to the NRC Branch Technical Position (BTP) 9.5-1 Appendix A.

A.11 COPY of exemption requests submitted but not yet approved for plant fire protection and post-fire safe shutdown or alternative shutdown features

A.12 Facility Operating License.

A.13 Technical Specifications (electronic format only).

A.14 Technical Requirements Manual (electronic format only).

A.15 Updated Final Safety Analysis Report (only the Fire Protection Section).

B. GENERAL PLANT DESIGN DOCUMENTS

B.1 Piping and Instrumentation Diagrams (P&IDs) and legend list for fire protection systems, including fire water supply, water suppression sprinklers & deluge, and CO2 & Halon systems. (C-size paper drawings)

B.2 Yard layout drawings for underground fire protection buried piping. (C-size paper drawings)

B.3 Plant layout or hazard barrier drawings showing the fire area boundaries and combustible control zones. (C-size paper drawings)

B.4 Alternating Current (AC) and direct current (DC) electrical system single line diagrams, from off-site power down to the highest safety-related bus level (e.g., typically 4kV diesel bus). (C-size paper drawings).

C. CLASSIC FIRE PROTECTION

C.2 Impairment Log for fire protection features that are out of service.

C.3 COPY of fire protection program implementing procedures (e.g., administrative controls, surveillance testing, and fire brigade).

C.4 LIST of calculations and engineering analyses, studies, or evaluations for the fire protection system, including the fire water system.

C.5 Hydraulic calculation or analysis for fire protection water system.

C.6 LIST of routine tests, surveillances, and preventive maintenance on fire pumps, including pump controllers and batteries.

C.7 Last two completed annual or 24 month fire pump pressure and flow tests.

C.8 Last two completed monthly or quarterly fire pump tests.

C.9 Last two completed fire loop flow tests and loop flushes.

C.10 COPY of the complete test, surveillance, or maintenance procedure (current document control copy), including any associated data forms, for the completed surveillances requested above in C.7, C.8, and C.9.

C.11 LIST of penetration seal work, re-work, or installation activities, in the last three years.

C.12 LIST of fire wrap work, re-work, or installation activities, in the last three years.

C.13 Last five hot work permits (at power).

C.14 Last five transient combustible permits (at power).

C.15 For Fire Brigade Drills, provide the following:

- Last five fire brigade drill critiques;
- Last drill critique for a drill with off-site fire department support;
- Last unannounced drill which was critiqued by a qualified individual Independent of the licensee's staff;
- Last unannounced drill critique;
- Last back-shift drill critique;
- Dates, shifts, and locations of unannounced drills for last three years; and
- Summary of any unsatisfactory drill performance items for last three years

C.16 For Fire Brigade Equipment, provide the following:

- Procedure for inventory and inspection; and
- Most recent inspection and inventory results

C.17 LIST of fire brigade training lesson plans.

C.18 For credited radio communications, provide the analysis or evaluation which demonstrates the adequacy and availability of the radio communications for a post-fire safe shutdown scenario, for all fire areas (e.g., power supply availability, radio coverage tests, etc.).

C.19 For Emergency Lighting Units (ELU), provide the following:

- LIST of Preventive Maintenance tasks and frequencies;
- Most recently performed monthly or quarterly functional test;
- Most recently performed battery discharge performance test;
- ELU battery loading analysis, for ELUs that supply more than two light heads;
- Vendor manual(s) for on-site inspector use; and
- Compensatory measures taken when ELUs are out of service

C.20 COPY of system health reports for the two most recent quarters, for the following:

- Fire Protection System;
- Fire Protection Program; and
- Emergency Lighting System

C.21 Three fire protection system impact screening reviews for recent design changes, modifications, or temporary modifications (e.g., a Generic Letter 86-10 review that screened out).

C.22 LIST of fire protection system design changes completed in the last three years (including their associated 10 CFR 50.59 and Generic Letter 86-10 evaluations).

C.23 Licensee evaluation of industry operating experience:

- NRC Information Notice (IN) 2013-02, Issues Potentially Affecting Nuclear Facility Fire Safety;
- NRC IN 2013-06, Corrosion in Fire Protection Piping Due to Air and Water Interaction;
- NRC IN 2013-09, Compressed Flammable Gas Cylinders and Associated Hazards;
- NRC IN 2014-15, Inadequate Controls of Respiratory Protection Accessibility, Training, and Maintenance; and
- NRC IN 2015-02, Anti-Freeze Agents in Fire Water Sprinkler Systems

D. ELECTRICAL

D.1 Identify whether the cables in the plant are predominantly Thermoset or Thermoplastic.

D.2 Maintenance procedures that verify breaker over-current trip settings to ensure coordination remains functional, for post-fire safe shutdown or alternative shutdown equipment.

D.3 Electrical system health reports for the two most recent quarters.

D.4 Last surveillance demonstrating operability of those components operated from the safe shutdown or alternative shutdown panel.

D.5 LIST of post-fire safe shutdown or alternative shutdown design changes completed in the last three years.

D.6 Administrative or configuration control procedures that govern fuse replacement (e.g., fuse control procedures).

D.7 Licensee evaluation of industry operating experience:

- NRC IN 2014-10, Potential Circuit Failure-Induced Secondary Fires or Equipment Damage

E. OPERATIONS

E.1 LIST of calculations and engineering analyses, studies, or evaluations for the safe shutdown or alternative shutdown methodology.

E.2 Thermal hydraulic calculation or analysis that determined the time requirements for time-critical operator actions.

E.3 Calculation or analysis that demonstrates reactor water level will remain above the top of active fuel at the safe shutdown or alternative shutdown panel, in accordance with the requirements of 10 CFR Part 50, Appendix R, III.L performance goals.

E.4 Operating procedures for post-fire safe shutdown from the main control room (e.g., with a postulated fire in a 10 CFR Part 50 Appendix R III.G.2 fire area).

E.5 Operating procedures for post-fire safe shutdown from outside the control room (e.g., with a postulated fire in a 10 CFR Part 50 Appendix R III.G.3 fire area).

E.6 For post-fire manual operator actions (OMA), provide the following:

- Manual Action Feasibility Study;
- Operator Time Critical Action Program;
- Time lines for time-critical OMAs; and
- Time line validations

E.7 Environmental and habitability evaluations for post-fire operator actions (temperature, smoke, humidity, self-contained breathing apparatus (SCBAs), etc.).

E.8 LIST of licensed operator Job Performance Measures (JPMs) for operator manual actions required by post-fire safe shutdown or alternative shutdown.

E.9 LIST of non-licensed operator training associated with post-fire safe shutdown or alternative shutdown manual actions which would be performed by a non-licensed operator (including JPMs, in-field training walkdowns, simulations, or initial qualification).

E.10 Lesson plans for post-fire safe shutdown or alternative shutdown training for licensed and non-licensed operators.

E.11 For safe shutdown equipment and tools, provide the following:

- Procedure for inventory and inspection; and
- Most recent inspection and inventory results

E.12 LIST of procedures that implement Cold Shutdown Repairs.

E.13 For Cold Shutdown Repairs, provide the following:

- Procedure for inventory and inspection (i.e., needed tools, material, etc.); and
- Most recent inspection and inventory results.

E.14 COPY of NRC approved exemption requests for operator manual actions for 10 CFR Part 50 Appendix R III.G.2 fire areas.

F. ADMINISTRATIVE CONTROL, OVERSIGHT, AND CORRECTIVE ACTION PROGRAMS

F .1 Corrective actions associated with post-fire safe shutdown or alternative shutdown operator manual actions for the last three years.

F .2 Self assessments, peer assessments, and audits of fire protection activities for the last three years.

F .3 Self assessments, peer assessments, and audits of the post-fire safe shutdown or alternative shutdown capabilities for the last three years.

F .4 LIST of open and closed condition reports for the fire protection system for the last three years.

F .5 LIST of open and closed condition reports for emergency lighting units for the last three years.

F .6 LIST of open and closed condition reports for post-fire safe shutdown (SSD) or alternative shutdown (ASD) issues for the last three years. This includes issues affecting the SSD or ASD analysis, fire hazards analysis, SSD or ASD operating procedures and/or training, timeline evaluations for operator actions, and supporting engineering evaluations, analysis, or calculations.

F .7 LIST of all Generic Letter 86-10 evaluations.

F .8 COPY of all Generic Letter 86-10 evaluations performed in the last three years.

III. Information Requested to be Available On-site on the First Day of the Inspection

On the first day of the on-site inspection, provide these documents to the inspection team:

C. CLASSIC FIRE PROTECTION

C.24 For the specific Penetration Seals selected during the Information Gathering Visit, provide:

- Qualification Records;
- Design Specifications;
- Installation details; and
- Inspection record which verified proper installation

C.25 For the specific Fire Wraps selected during the Information Gathering Visit, provide:

- Qualification Records;
- Design Specifications;
- Installation details; and
- Inspection record which verified proper installation

C.26 For the specific fire areas selected for inspection during the Information Gathering Visit, provide the analysis of the effects of fire suppression activities which demonstrates:

- a fire water pipe break in the selected fire areas, won't affect safe shutdown capability for equipment located in the selected fire areas;
- a fire water pipe break in an adjacent fire area, won't affect safe shutdown capability for equipment in the selected fire areas; and
- hydrostatic rating of any floor penetration seals installed within the fire areas that are credited with keeping water from leaking into the fire areas below

C.27 For the specific fire areas selected for inspection during the Information Gathering Visit, provide:

- Last two completed surveillance's of fire protection features (e.g., detection, suppression, damper inspections, damper tests, penetration inspections, barrier inspections, etc.)

C.28 COPY of the complete test, surveillance, or maintenance procedure (current document control copy), including any associated data forms, for the completed surveillances requested above in C.27.

C.29 For the specific fire areas selected for inspection during the Information Gathering Visit, if any of the selected fire areas use CO2 or Halon, then provide:

- The initial discharge testing, calculation, or analysis that determined appropriate concentrations and soak or hold times can be achieved

D. ELECTRICAL

D.8 For the specific fire areas selected for inspection during the Information Gathering Visit, specifically identify:

- Any Thermoplastic Cable in the selected areas

D.9 For the specific electrical circuits selected for inspection during the Information Gathering Visit, provide:

- Schematic or elementary diagrams for circuits to be reviewed. (C-size paper drawings); and
- Cable block diagrams for circuits to be reviewed. (C-size paper drawings)

D.10 For the specific fire areas selected for inspection during the Information Gathering Visit, provide:

- Breaker and fuse coordination calculations or analysis for post-fire safe shutdown or alternative shutdown equipment in the selected areas

D.11 Cable routing information, as requested during the Information Gathering Visit.

Mitigating Strategies Supporting Documentation

On the first day of the Information Gathering Visit, provide these documents:

H. 10 CFR 50.54(hh)(2) MITIGATING STRATEGIES DOCUMENTS

H .1 LIST of all changes to regulatory commitments made to meet the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(hh)(2).

H.2 LIST of procedures and guidelines that were revised or generated to implement the mitigating strategies. These could be extensive damage mitigation guidelines (EDMGs), severe accident management guidelines (SAMGs), emergency operating procedures (EOPs), abnormal operating procedures (AOPs), etc.

H.3 A matrix that shows the correlation between the mitigation strategies identified in Nuclear Energy Institute 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline," issued December 2006, and the site-specific procedures or guidelines that are used to implement each strategy.

H.4 LIST of engineering evaluations or calculations that were used to verify the engineering bases for the mitigating strategies.

H.5 Piping and instrumentation diagrams (P&ID) and legend list or simplified flow diagrams for systems relied upon in the mitigating strategies. These could be the type used for training. (C-size paper drawings)

H.6 LIST of modification packages or summary descriptions of modifications with simplified drawings, for necessary facility changes to implement the mitigating strategies.

H.7 LIST of routine tests, surveillances, and preventive maintenance for equipment and tools needed to implement 10 CFR 50.54(hh)(2) strategies.

H.8 For equipment and tools needed to implement 10 CFR 50.54(hh)(2) strategies, provide the following:

- Procedures for inventory and inspection; and
- Most recent inspection and inventory results

H.9 LIST of 10 CFR 50.54(hh)(2) strategies, if any, which have implementing details that differ from that documented in the submittals or the safety evaluation report.

H.10 Site general arrangement drawings that show the majority of buildings and areas referenced in 10 CFR 50.54(hh)(2) documents. (C-size paper drawings)

H.11 Training records, training matrix, and lesson plans related to 10 CFR 50.54(hh)(2).

H.12 Copies of memoranda of understanding (MOU) (e.g., with local fire departments) required to implement any mitigating strategies.