UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

July 11, 2019

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Blvd., Floor: IN-2SW
Glen Allen, VA 29060

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 – NOTIFICATION OF CONDUCT OF A TRIENNIAL FIRE PROTECTION BASELINE INSPECTION- U. S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT NO. 05000395/2019012

Dear Mr. Stoddard:

The purpose of this letter is to notify you that the U.S. Nuclear Regulatory Commission (NRC) staff will conduct a triennial fire protection baseline inspection at the V.C. Summer Nuclear Station in September 2019. The inspection will be conducted in accordance with IP 71111.05XT, the NRC's baseline fire protection inspection procedure for plants that have transitioned their fire protection program to meet the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48(c). The inspection team will be led by Mr. Ellery Coffman, a Reactor Inspector from the NRC Region II Office. The team will be composed of personnel from the Region II Office.

On July 11, 2019, during a telephone conversation between Mr. Michael Moore of your staff and Mr. Coffman, our respective staffs the confirmed arrangements for a three-day information gathering onsite visit and the two-week onsite inspection. The schedule for the inspection is as follows:

- Information gathering visit: August 19 – 21, 2019
- Week 1 of onsite inspection: September 16 - 20, 2019
- Week 2 of onsite inspection: September 30 – October 4, 2019

The purposes of the information gathering visit are to obtain information and documentation needed to support the inspection, to become familiar with V.C. Summer's fire protection program, fire protection features, post-fire safe shutdown capabilities, plant layout, mitigating strategies to address 10 CFR 50.54(hh)(2), and, as necessary, obtain plant specific site access training and badging for unescorted site access.

The types of documents the team will be reviewing during conduct of the inspection are listed in Enclosures 1 and 2. Please contact Mr. Coffman at (404) 997 - 4633 prior to preparing copies of the materials listed in the Enclosures. The inspection team will try to minimize your administrative burden by specifically identifying those documents required for inspection preparation.

During the information gathering visit, the team will also discuss the following inspection support administrative details: office space; specific documents to be made available to the team in their office space; arrangements for unescorted site access (including, as necessary, radiation protection training, security, safety and fitness for duty requirements); and the availability of knowledgeable plant engineering and licensing organization personnel to serve as points of contact during the inspection.

We request that during the onsite inspection weeks you ensure that copies of analyses, evaluations or documentation regarding the implementation and maintenance of the V.C. Summer fire protection program, including post-fire safe shutdown capability, be readily accessible to the team for their review. Of specific interest for the fire protection portion of the inspection are those documents which establish that your fire protection program satisfies NRC regulatory requirements and conforms to applicable NRC and industry fire protection guidance (i.e. fire protection compliance assessment documents). For the 10 CFR 50.54(hh)(2) portion of the inspection, those documents implementing your mitigating strategies and demonstrating the management of your commitments for the strategies are of specific interest. Also, personnel should be available at the site during the inspection who are knowledgeable regarding those plant systems required to achieve and maintain safe shutdown conditions from inside and outside the control room (including the electrical aspects of the relevant post-fire safe shutdown analyses), reactor plant fire protection systems and features, and the V.C. Summer fire protection program and its implementation.

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 of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC’s document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Your cooperation and support during this inspection will be appreciated. If you have questions concerning this inspection, or the inspection team's information or logistical needs, please contact Mr. Coffman, the team leader, in the Region II Office at (404) 997 - 4633, or me at (404) 997 - 4521.

Sincerely,

/RA/

Scott M. Shaeffer, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No: 05000395
License No: NPF-12

Enclosures:
1. Triennial Fire Protection Inspection Supporting Documentation
2. Mitigating Strategies Supporting Documentation

cc: Distribution via ListServ

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*See previous page for concurrence

☒ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ☒ NON-SENSITIVE

ADAMS: ☒ Yes ACCESSION NUMBER: **ML 19192A343** ☒ SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	RII:DRS/EB2	RII:DRS/EB2				
SIGNATURE	**ETC**	SMS				
NAME	E. COFFMAN	S. SHAEFFER				
DATE	7/11/2019	7/11/2019				
E-MAIL COPY?	YES NO	YES NO				

OFFICIAL RECORD COPY DOCUMENT NAME: S:\DRS New\Eng Branch 2\REPORTS\TFPI Reactor Inspection Reports\Summer\2019\VCS 2019012 TFPI Notification Letter

TRIENNIAL FIRE PROTECTION INSPECTION SUPPORTING DOCUMENTATION

The documents and information requested below should generally be made available to the inspection team during the on-site information gathering visit for the team's use both on-site and off-site during the inspection. Electronic format 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. Electronic media on compact disc or paper records (hard copy) are acceptable. At the end of the inspection, the documents in the team's possession will not be retained.

Approximately three weeks before the on-site information gathering visit, the following documents should be made available to the team leader for review in the regional office:

- Post-fire Nuclear Safety Capability, Systems, and Separation Analysis (request A.1)
- Fire Hazards Analysis and/or NFPA 805 Design Basis Document (request A.2)
- Fire Probabilistic Risk Assessment (PRA) Summary Report (request A.3)
- Fire Risk Evaluations (i.e., NFPA 805 Section 2.4.3) (request A.5)
- Plant Change Evaluations (i.e., NFPA 805 Section 2.4.4) (request A.6)
- List of the top 25 highest CDF scenarios for each unit
- List of the top 25 highest LERF scenarios for each unit
- Status of committed modifications and implementation items listed in the NFPA 805 Transition Report

Based on review of the above eight 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.

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.

A. DESIGN AND LICENSING BASIS DOCUMENTS

A.1 Post-fire Nuclear Safety Capability, Systems, and Separation Analysis.

A.2 Fire Hazards Analysis and/or NFPA 805 Design Basis Document.

A.3 Fire PRA Summary Report

A.4 LIST of Fire PRA Calculations (i.e. Component Selection Calculation, Partitioning and Frequency Calculation, etc.)

A.5 Fire Risk Evaluations (i.e., NFPA 805 Section 2.4.3).

A.6 Plant Change Evaluations (i.e., NFPA 805 Section 2.4.4).

A.7 Fire Protection Program and/or Fire Protection Plan.

A.8 LIST of post-fire safe shutdown components (i.e., safe shutdown equipment list), if not already included in A.1 document.

A.9 Fire Protection System Design Basis Document.

A.10 COPY of NRC approved exemptions for plant fire protection and post-fire nuclear safety capability features.

A.11 LIST of nuclear safety capability design changes completed in the last three years (including their associated 10 CFR 50.59 and NFPA 805 plant change evaluations).

A.12 Facility Operating License.

A.13 Technical Specifications (electronic format only).

A.14 Technical Requirements Manual, or equivalent (electronic format only).

B. GENERAL PLANT DESIGN DOCUMENTS

B.1 Piping and instrumentation diagrams (P&IDs) and legend list for systems used to achieve and maintain nuclear safety performance criteria for: (C-size paper drawings & electronic format)

- Fires outside the main control room; and
- Fires in areas requiring recovery actions at other than primary control stations.

B.2 P&IDs and legend list for fire protection systems, including fire water supply, water suppression sprinklers & deluge, and CO2 and Halon systems (C-size paper drawings & electronic format).

B.3 Yard layout drawings for underground fire protection buried piping (C-size paper drawings & electronic format).

B.4 AC and DC electrical system single line diagrams, from off-site power down to the highest safety-related bus level (typically 4kV, EDG bus) (C-size paper drawings & electronic format)

B.5 Single line diagrams for motor control centers (MCCs) that supply post-fire nuclear safety component loads (only for selected fire areas) (C-size paper drawings & electronic format).

C. CLASSIC FIRE PROTECTION

C.1 COPY of fire protection program implementing procedures (e.g., administrative controls, surveillance testing, fire brigade).

C.2 LIST of calculations and engineering analyses, studies, or evaluations for the fire protection system, including the fire water system.

C.3 Hydraulic calculation or analysis for fire protection water system.

C.4 Last two completed surveillance's of fire protection features in the selected fire areas (detection, suppression, damper inspections, damper tests, penetration inspections, barrier inspections, etc.).

C.5 LIST of routine tests, surveillances, and preventive maintenance on fire pumps, including pump controllers and batteries.

C.6 Last two completed annual fire pump pressure and flow tests.

C.7 Last two completed monthly and/or quarterly fire pump tests.

C.8 Last two completed fire loop flow tests and loop flushes.

C.9 CO2 and Halon initial discharge testing or calculation that determined appropriate concentrations and soak or hold times can be achieved (only for selected fire areas).

C.10 For Fire Brigade Drills, provide the following:

- Last five fire brigade drill critiques;
- Summary of any unsatisfactory drill performance items for last three years; and
- Last unannounced drill critique by a qualified individual independent of the licensee's staff.

C.11 For fire brigade equipment provide the following:

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

C.12 Fire Brigade Qualifications, including self-contained breathing apparatus (SCBA) and training lesson plans.

C.13 COPY of the evaluation or analysis of the effects of fire suppression activities on the ability to achieve the nuclear safety performance criteria (only for selected fire areas), including:

- An automatic or manually actuated suppression system, due to a fire in a single location, will not indirectly cause damage to the success path; and

- inadvertent actuation or rupture of a suppression system will not indirectly cause damage to the success path; and
- demonstration of adequate drainage for areas protected by water suppression systems;
- hydrostatic rating of any floor penetration seals installed within the fire areas that are credited with keeping water from leaking into fire areas below.

C.14 LIST of work orders for work performed on any credited fire barrier (i.e., door, penetration seal, fire wrap, etc.) in the last three years.

C.15 Fire protection system health reports for the two most recent quarters.

C.16 Fire protection program health report for the two most recent quarters.

C.17 LIST of fire protection system design changes completed in the last three years (including their associated 10 CFR 50.59 and NFPA 805 plant change evaluations).

C.18 LIST of fire protection system NFPA 805 engineering equivalency evaluations completed in the last three years.

D. ELECTRICAL

D.1 Identify whether the cables in the selected fire areas are predominantly Thermoset or Thermoplastic.

D.2 Nuclear safety circuit coordination analysis for fuse and breaker coordination of nuclear safety capability components.

D.3 Last surveillance demonstrating operability of those components operated from the primary control stations.

D.4 LIST of post-fire nuclear safety capability system and component design changes completed, in the last three years.

E. OPERATIONS

E.1 LIST of licensed operator Job Performance Measures (JPMs) for recovery actions required to achieve and maintain post-fire nuclear safety performance criteria.

E.2 LIST of non-licensed operator training associated with recovery actions required to achieve and maintain post-fire nuclear safety performance criteria (including JPMs, in-field training walkdowns, simulations, or initial qualification).

E.3 For required and defense-in-depth recovery actions, provide the following:

- Recovery Action Feasibility Study;
- Operator Time Critical Action Program;
- Time lines for time-critical recovery actions; and
- Time line validations

E.4 If applicable, thermal hydraulic calculation or analysis that determines the time requirements for recovery actions and defense-in-depth actions.

E.5 Operating procedures to achieve and maintain nuclear safety performance criteria from the control room, with a postulated fire in the selected fire areas.

E.6 Operating procedures to achieve and maintain nuclear safety performance criteria from outside the control room, with a postulated fire in the control room, cable spreading room, or any area requiring recovery actions (other than recovery actions performed in the control room or primary control stations).

E.7 For equipment and tools required for recovery actions, provide the following:

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

F. ADMINISTRATIVE CONTROL, OVERSIGHT, AND CORRECTIVE ACTION PROGRAMS

F.1 Self assessments, peer assessments, and audits of fire protection activities for the last three years.

F.2 Self assessments, peer assessments, and audits of post-fire nuclear safety capability methodology for the last three years.

F.3 LIST of open and closed condition reports for the fire protection system for the last three years.

F.4 LIST of fire event analysis reports for the last three years.

F.5 LIST of open and closed condition reports for post-fire nuclear safety capability issues for the last three years. This includes issues affecting the nuclear safety capability analysis, fire hazards analysis, NFPA 805 design basis, fire risk evaluations, plant change evaluations, post-fire operating procedures and/or training, timeline evaluations for operator actions, and supporting engineering evaluations, analysis, or calculations.

F.6 LIST of procedures that control the configuration of the fire protection program, features, and post-fire nuclear safety capability methodology and system design.

F.7 Site procedure governing the NFPA 805 Monitoring Program

MITIGATING STRATEGIES SUPPORTING DOCUMENTATION

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

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).

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.

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

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

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

6 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.

7 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.

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

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