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CNS-16-030

June 15, 2016

10 CFR 50.90

U.S. Nuclear Regulatory Commission (NRC)
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414
License Amendment Request (LAR) to Adopt National Fire Protection Association (NFPA) 805 Performance-Based Standard for Fire Protection for Light-Water Reactor Generating Plants
LAR Supplement to Address the Disposition of Outstanding Analysis Items
(TAC Nos. MF2936 and MF2937)

References: Letters from Duke Energy to the NRC, dated September 25, 2013 (ADAMS Accession Number ML13276A503), January 13, 2015 (ADAMS Accession Number ML15015A409), January 28, 2015 (ADAMS Accession Number ML15029A697), February 27, 2015 (ADAMS Accession Number ML15065A107), March 30, 2015 (ADAMS Accession Number ML15091A339), April 28, 2015 (ADAMS Accession Number ML15119A533), July 15, 2015 (ADAMS Accession Number ML15198A036), August 14, 2015 (ADAMS Accession Number ML15231A010), September 3, 2015 (ADAMS Accession Number ML15310A123), December 11, 2015 (ADAMS Accession Number ML15350A014), January 7, 2016 (ADAMS Accession Number ML16011A121), and March 23, 2016 (ADAMS Accession Number ML16096A262)

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The reference letters comprise in their entirety Duke Energy's request for NRC review and approval for adoption of a new fire protection licensing basis which complies with the requirements in 10 CFR 50.48(a), 10 CFR 50.48(c), and the guidance in Regulatory Guide (RG) 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants", Revision 1, dated December 2009. The September 25, 2013 reference LAR was developed in accordance with the guidance contained in Nuclear Energy Institute (NEI) 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)", Revision 2.

The purpose of this LAR supplement is fourfold:

1. The September 25, 2013 reference letter (LAR Attachment B, "NEI 04-02 Table B-2 - Nuclear Safety Capability Assessment - Methodology Review", Page 66 of 103) indicated that Catawba performed circuit analysis that evaluated the potential for Information Notice 92-18 damage. Page 80 of 103 discussed the need to perform additional analysis to ensure the valve can be operated using the handwheel (if required to achieve safe shutdown) and no damage occurs to the valve pressure boundary. Catawba completed this additional analysis on May 11, 2016 and concluded that no potential for valve pressure boundary breach exists.

2. A gap was identified in the NFPA 805 safe shutdown analysis related to the reactor coolant pump seals and the time available to start the Standby Shutdown Facility's (SSF) standby make-up pump (SMUP). The original analysis to support NUREG-0800 safe shutdown credits the ability of the Component Cooling Water System to use natural circulation to provide additional cooling to the reactor coolant pump seals for the needed ten minutes until the SMUP can be started. Under NFPA 805, ten minutes is no longer ensured for this purpose. Therefore, Catawba needs to update the reactor coolant pump analysis to account for the fact that the Component Cooling Water System cannot be ensured to perform this function. This analysis is currently in progress and will be completed prior to implementation of NFPA 805 at Catawba. An implementation item has been included in LAR Attachment S, "Modifications and Implementation Items" to document the pending resolution of this issue.

3. Catawba utilizes pipe and HVAC duct insulation that does not meet the NFPA 805 definition for limited combustible material. NFPA 805 Section 3.3.4 requires that thermal insulation materials, radiation shielding materials, ventilation duct materials, and soundproofing materials be noncombustible or limited combustible. NFPA 805 Section 1.6.36 defines limited combustible as having a potential heat value not exceeding 3500 Btu/lb and either 1) having a structural base of noncombustible material with a surfacing not exceeding a thickness of 1/8 in with a flame spread rating not greater than 50, or 2) having another material with neither a flame spread rating greater than 25 nor evidence of continued progressive combustion, even on surfaces exposed by cutting through the material on any plane. The foam type insulation material used at Catawba satisfies the flame spread rating requirement, but it does not meet the heat value requirement. This does not represent a current licensing basis issue, as foam type insulation material used at Catawba (Armeflex, Rubatex, etc.) was documented as acceptable in Supplement 3 of the Catawba

Safety Evaluation Report (Unresolved Item 413/84-46-14). Included is a revision to LAR Attachment A, "NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements" to reflect the disposition of this issue. By copy of this letter, Duke Energy therefore requests that Catawba be allowed to continue to take exception to the heat value requirement of NFPA 805 for this material.

4. Duke Energy is recompiling LAR Attachment S, "Modifications and Implementation Items", to reflect which items have been completed and which items are still outstanding. Included is a re-transmittal of the entire final LAR Attachment S, which is designated as Revision 6 and has all revision bars removed. This constitutes the final clean copy of Attachment S for referencing in the Facility Operating Licenses.

The conclusions of the No Significant Hazards Consideration and the Environmental Consideration contained in the September 25, 2013 reference LAR are unaffected by this LAR supplement.

There are no new regulatory commitments contained in this letter or its enclosure.

Pursuant to 10 CFR 50.91, a copy of this LAR supplement is being sent to the appropriate State of South Carolina official.

Inquiries on this matter should be directed to L.J. Rudy at (803) 701-3084.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 15, 2016.

Very truly yours,

FOR

Kelvin Henderson
Vice President, Catawba Nuclear Station

LJR/s

Enclosure

xc (with enclosure):

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Enclosure

NFPA 805 LAR Revised Pages

Duke Energy Carolinas, LLC
Catawba Nuclear Station

Transition to 10 CFR 50.48(c) - NFPA 805
Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition

Transition Report
Revision 6

June 2016

A. NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

42 Pages Attached

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.1 General	3.1* General. This chapter contains the fundamental elements of the fire protection program and specifies the minimum design requirements for fire protection systems and features. These fire protection program elements and minimum design requirements shall not be subject to the performance-based methods permitted elsewhere in this standard. Previously approved alternatives from the fundamental protection program attributes of this chapter by the AHJ take precedence over the requirements contained herein.	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.2 Fire Protection Plan	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.2.1 Intent	3.2.1 Intent. A site-wide fire protection plan shall be established. This plan shall document management policy and program direction and shall define the responsibilities of those individuals responsible for the plan's implementation. This section establishes the criteria for an integrated combination of components, procedures, and personnel to implement all fire protection program activities	Comply	A site-wide Fire Protection Program has been established and is documented in the Design Basis Specification for the Plant Fire Protection.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 1] - Design Basis Specification for the Plant Fire Protection		
3.2.2 Management Policy Direction and Responsibility.	3.2.2* Management Policy Direction and Responsibility. A policy document shall be prepared that defines management authority and responsibilities and establishes the general policy for the site fire protection program.	Comply	A policy document has been developed to define management authority and responsibilities and is documented in the Design Basis Specification for the Plant Fire Protection.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 1.a] - Design Basis Specification for the Plant Fire Protection		
3.2.2.1 [Management Policy on Senior Management]	3.2.2.1* The policy document shall designate the senior management position with immediate authority and responsibility for the fire protection program.	Comply	The Site Vice President is documented as the senior management position responsible for the implementation of the fire protection program.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 1.a] - Design Basis Specification for the Plant Fire Protection		
3.2.2.2 [Management Policy on Daily Administration]	3.2.2.2* The policy document shall designate a position responsible for the daily administration and coordination of the fire protection program and its implementation.	Comply	The Fire Protection Engineer is responsible for the daily administration and coordination of the fire protection program.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 1.a] - Design Basis Specification for the Plant Fire Protection		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.2.2.3 [Management Policy on Interfaces]	3.2.2.3* The policy document shall define the fire protection interfaces with other organizations and assign responsibilities for the coordination of activities. In addition, this policy document shall identify the various plant positions having the authority for implementing the various areas of the fire protection program.	Comply	The interfaces between the fire protection program and other organizations and the assignment of responsibilities for station personnel are included in various station documents. Station documentation identifies various plant positions with the authority having jurisdiction for implanting various areas of the fire protection program.
References	**Document ID**		
	CNS FP ESD Rev. 1/12/12 [Section 4] - CNS Fire Protection Program Engineering Support Document		
	CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 1] - Design Basis Specification for the Plant Fire Protection		
	NSD-112 Rev. 11 [Section 112.4] - Fire Brigade Organization, Training & Responsibilities		
	NSD-316 Rev. 13 [Section 316.4] - Fire Protection Impairment and Surveillance		
3.2.2.4 [Management Policy on AHJ]	3.2.2.4* The policy document shall identify the appropriate AHJ for the various areas of the fire protection program.	Comply	The NRC is the Authority Having Jurisdiction (AJH) for fire protection changes requiring approval. The NRC is notified of changes to the fire protection program in accordance with NSD- 320. NSD-320 screens changes to the fire protection program to determine if NRC approval is required. Implementation Item: The Design Basis Specification for the Plant Fire Protection, which is the primary fire protection program policy document, will be updated to include the statement that the NRC is the AHJ for fire protection changes requiring approval. See Implementation Item 3 in Table S-3 of Attachment S.
References	**Document ID**		
	NSD-320 Rev. 4 [Section 320.1, 320.3] - Guidance for Performing Licensing Review of Proposed Changes to the Fire Protection Program		
3.2.3 Procedures	3.2.3* Procedures. Procedures shall be established for implementation of the fire protection program. In addition to procedures that could be required by other sections of the standard, the procedures to accomplish the following shall be established:	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.2.3 Procedures (1)	3.2.3 (1) * Inspection, testing, and maintenance for fire protection systems and features credited by the fire protection program	Comply	Procedures have been established or implemented for inspection, testing, and maintenance of the fire protection systems and features. The Fire Protection Engineering Support Document (ESD) contains an uncontrolled list of the fire protection related inspection and maintenance procedures.
References	**Document ID**		
	CNS FP ESD Rev. 1/12/12 [Section 2.4] - CNS Fire Protection Program Engineering Support Document		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
		Submit for NRC Approval	Surveillance frequencies may be modified in accordance with the methodology in EPRI Report TR1006756, "Fire Protection Equipment Surveillance Optimization and Maintenance Guide." CNS requests formal NRC approval of this methodology. See Attachment L of the License Amendment Request for further details on the request for NRC approval of the EPRI Surveillance Frequency Optimization and Maintenance Guide. Implementation Item: Appropriate fire protection program document(s) will be updated to provide a requirement that if a plant elects to implement the methodologies in EPRI Report TR1006756, that the methodologies will be implemented in their entirety as they pertain to the fire protection systems or features being evaluated. See Implementation Item 4 in Table S-3 of Attachment S.
3.2.3 Procedures (2)	3.2.3 (2) * Compensatory actions implemented when fire protection systems and other systems credited by the fire protection program and this standard cannot perform their intended function and limits on impairment duration	Comply	A fire protection impairment and surveillance procedure has been established to identify the compensatory actions implemented when fire protection features cannot perform their intended function.
References	**Document ID** NSD-316 Rev. 13 - Fire Protection Impairment and Surveillance		
3.2.3 Procedures (3)	3.2.3 (3) * Reviews of fire protection program — related performance and trends	Comply	Procedures have been established for fire protection program reviews. Reviews of the Plant Fire Protection Program are conducted on a regular basis and data is collected for performance monitoring and trending. Implementation Item: The monitoring program required by NFPA 805 will include a process that monitors and trends the fire protection systems and features based on specific goals established to measure availability and reliability. See Implementation Item 5 in Table S-3 of Attachment S.
References	**Document ID** CNS FP ESD Rev. 1/12/12 [Section 6.1] - CNS Fire Protection Program Engineering Support Document EDM-201 Rev. 17 - Engineering Support Program EDM-203 Rev. 4 - Equipment Reliability Health Monitoring, Assessing, Reporting and Action Planning		
3.2.3 Procedures (4)	3.2.3 (4) Reviews of physical plant modifications and procedure changes for impact on the fire protection program	Comply	Procedures have been established for plant modification reviews and procedure revisions for impact on the fire protection program.
References	**Document ID** EDM-601 Rev. 20 [App. N] - Engineering Change Manual NSD-228 Rev. 10 [App. E] - Applicability Determination		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
	NSD-301 Rev. 41 [Sections 301.6.2.1.3 and 6.2.4.2] - Engineering Change Program NSD-320 Rev. 4 - Guidance for Performing Licensing Review of Proposed Changes to the Fire Protection Program		
3.2.3 Procedures (5)	3.2.3 (5) Long-term maintenance and configuration of the fire protection program	Comply	Procedures have been established for the long term maintenance and configuration of the fire protection program.
References	**Document ID** NSD-106 Rev. 7 - Configuration Management NSD-228 Rev. 10 - Applicability Determination NSD-320 Rev. 4 - Guidance for Performing Licensing Review of Proposed Changes to the Fire Protection Program		
3.2.3 Procedures (6)	3.2.3 (6) Emergency response procedures for the plant industrial fire brigade.	Comply	Emergency response procedures for the plant fire brigade have been established.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies - NSD-112 Rev. 11 [Section 112.2] - Fire Brigade Organization, Training & Responsibilities RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.3 Prevention	3.3 Prevention. A fire prevention program with the goal of preventing a fire from starting shall be established, documented, and implemented as part of the fire protection program. The two basic components of the fire prevention program shall consist of both of the following: (1) Prevention of fires and fire spread by controls on operational activities (2) Design controls that restrict the use of combustible materials The design control requirements listed in the remainder of this section shall be provided as described.	Comply	The CNS fire prevention program is described in the Design Basis Specification for the Plant Fire Protection. The Design Basis Specification for the Plant Fire Protection identifies activities for fire prevention via controls on operational activities and design controls for use of combustible materials. The objectives are implemented by various station directives and other documents as described in subsequent NFPA 805 sections.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 2] - Design Basis Specification for the Plant Fire Protection		
3.3.1 Fire Prevention for Operational Activities.	3.3.1 Fire Prevention for Operational Activities. The fire prevention program activities shall consist of the necessary elements to address the control of ignition sources and the use of transient combustible materials during all aspects of plant operations. The fire prevention program shall focus on the human and programmatic elements necessary to prevent fires from starting or, should a fire start, to keep the fire as small as possible.	Comply	Fire prevention program, activities for control of ignition sources and transient combustibles include training, inspections, and administrative controls have been established. The fire prevention objectives are implemented by various station directives and other documents as described in subsequent sections.
References	**Document ID** Duke PAT Rev. 08/01/2012 - Duke Energy Plant Access Training NSD-104 Rev. 33 - Materiel Condition/Housekeeping, Foreign Material Exclusion and Seismic Concerns		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
	NSD-313 Rev. 13 - Control of Flammable and Combustible Materials NSD-314 Rev. 14 - Hot Work Authorization and Portable Heater Control NSD-315 Rev. 5 - Temporary Structures NSD-316 Rev. 13 - Fire Protection Impairment and Surveillance		
3.3.1.1 General Fire Prevention Activities	3.3.1.1 General Fire Prevention Activities. The fire prevention activities shall include but not be limited to the following program elements:	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements. Note: Duke Energy has developed multiple directives and work practices to address fire prevention. These directives include but are not limited to the programmatic elements provided in NFPA 805 Section 3.3.1.1. Upon review of the elements listed below, CNS believes that the NFPA 805 code requirements are satisfied and no additional elements were evaluated.
3.3.1.1 General Fire Prevention Activities (1)	3.3.1.1 (1) Training on fire safety information for all employees and contractors including, as a minimum, familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms	Comply	The prevention of fires and fire spread are managed through administrative controls and continual training of personnel.
References	**Document ID** Duke PAT Rev. 08/01/2012 [Pages 16, 67, 116] - Duke Energy Plant Access Training NSD-313 Rev. 13 - Control of Flammable and Combustible Materials NSD-314 Rev. 14 - Hot Work Authorization and Portable Heater Control		
3.3.1.1 General Fire Prevention Activities (2)	3.3.1.1 (2) * Documented plant inspections including provisions for corrective actions for conditions where unanalyzed fire hazards are identified	Comply	Plant inspections are documented and provisions for implementing corrective actions, where unidentified fire hazards are identified, are tracked through the station's Corrective Action Process.
References	**Document ID** CNS FP ESD Rev. 1/12/12 [Section 6.2] - CNS Fire Protection Program Engineering Support Document NSD-208 Rev. 38 - Problem Investigation Process (PIP) Operations Management Procedure (OMP) 2-19 Rev. 46 - Conduct of Operator Rounds		
3.3.1.1 General Fire Prevention Activities (3)	3.3.1.1 (3) * Administrative controls addressing the review of plant modifications and maintenance to ensure that both fire hazards and the impact on plant fire protection systems and features are minimized.	Comply	All plant modifications and changes are screened for impact on the plant fire protection program during both the design phase and the implementation phase. Administrative controls are provided in various directives.
References	**Document ID** EDM-601 Rev. 20 [Att. N] - Engineering Change Manual NSD-228 Rev. 10 - Applicability Determination NSD-301 Rev. 41 - Engineering Change Program NSD-320 Rev. 4 - Guidance for Performing Licensing Review of Proposed Changes to the Fire Protection Program		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.3.1.2 Control of Combustible Materials	3.3.1.2* Control of Combustible Materials. Procedures for the control of general housekeeping practices and the control of transient combustibles shall be developed and implemented. These procedures shall include but not be limited to the following program elements:	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements. Note: Duke Energy has developed multiple directives and work practices to address fire prevention. These directives include but are not limited to the programmatic elements provided in NFPA 805 Section 3.3.1.2. Upon review of the elements listed below, CNS believes that the NFPA 805 code requirements are satisfied and no additional elements were evaluated.
3.3.1.2 Control of Combustible Materials (1)	3.3.1.2 (1) * Wood used within the power block shall be listed pressure-impregnated or coated with a listed fire-retardant application. Exception: Cribbing timbers 6 in. by 6 in. (15.2 cm by 15.2 cm) or larger shall not be required to be fire-retardant treated.	Comply	Wood is required to be flame retardant except where allowed by the exception to this section. Implementation Item: Revise station procedures/directives to comply with NFPA 805 Section 3.3.1.2(1). See Implementation Item 6 in Table S-3 of Attachment S.
References	**Document ID** NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.1.2 Control of Combustible Materials (2)	3.3.1.2 (2) Plastic sheeting materials used in the power block shall be fire-retardant types that have passed NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films, large-scale tests, or equivalent.	Comply	Specific administrative directives have been developed for the control of combustible materials which require plastic sheeting materials used in the power block shall be fire-retardant types that have passed NFPA 701, or equivalent.
References	**Document ID** NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.1.2 Control of Combustible Materials (3)	3.3.1.2 (3) Waste, debris, scrap, packing materials, or other combustibles shall be removed from an area immediately following the completion of work or at the end of the shift, whichever comes first.	Comply	Specific administrative directives have been developed for the control of combustible materials including the removal of all unnecessary waste, debris, scrap, packaging materials, and other combustibles at the end of each shift.
References	**Document ID** NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.1.2 Control of Combustible Materials (4)	3.3.1.2 (4) * Combustible storage or staging areas shall be designated, and limits shall be established on the types and quantities of stored materials.	Comply	Specific administrative directives have been developed for the control of combustible materials including limits on the types and quantities of stored materials.
References	**Document ID** NSD-313 Rev. 13 [Section 313.5, App. A, Suplement S.1] - Control of Flammable and Combustible Materials		
3.3.1.2 Control of Combustible Materials (5)	3.3.1.2 (5) * Controls on use and storage of flammable and combustible liquids shall be in accordance with NFPA 30, Flammable and Combustible Liquids Code, or other applicable NFPA standards.	Comply	Specific administrative directives and procedures have been developed for the use and storage of flammable and combustible liquids in accordance with NFPA 30 guidance. No other NFPA standards were determined to be applicable based on the guidance in FAQ 06-0020.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.b.4] - Design Basis Specification for the Plant Fire Protection Duke Energy SWP Manual Rev. 03/13 [Page 141] - Safe Work Practices 2013 NEWP 7.2 Rev. 1 - Storing Chemicals NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.1.2 Control of Combustible Materials (6)	3.3.1.2 (6) * Controls on use and storage of flammable gases shall be in accordance with applicable NFPA standards.	Comply	Specific administrative directives and procedures have been developed for the use and storage of flammable gases in accordance with NFPA 55. No other NFPA standards were determined to be applicable based on the guidance in FAQ 06-0020.
References	**Document ID** Duke Energy SWP Manual Rev. 03/13 [Page 21] - Safe Work Practices 2013 NEWP 7.2 Rev. 1 - Storing Chemicals NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.1.3 Control of Ignition Sources	3.3.1.3 Control of Ignition Sources	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.3.1.3.1 [Control of Ignition Sources Code Requirements]	3.3.1.3.1* A hot work safety procedure shall be developed, implemented, and periodically updated as necessary in accordance with NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, and NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.	Comply	Hot work is controlled through administrative directives in accordance with NFPA 51B. The directive is updated on an "as needed" basis. NFPA 241 is addressed through compliance with NFPA 51B. NFPA 241, 2000 edition, as referenced by NFPA 805, 2001 edition, Section 5.1.1, with respect to hot work, states "Responsibility for hot work operations and fire prevention precautions , including permits and fire watches, shall be in accordance with NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work."
References	**Document ID** NSD-314 Rev. 14 - Hot Work Authorization and Portable Heater Control		
3.3.1.3.2 [Control of Ignition Sources on Smoking Limitations]	3.3.1.3.2 Smoking and other possible sources of ignition shall be restricted to properly designated and supervised safe areas of the plant.	Comply	Smoking is restricted to approved locations and other sources of ignition are controlled through administrative directives and as directed in the General Plant Access Training program.
References	**Document ID** Duke PAT Rev. 08/01/2012 [Page 6] - Duke Energy Plant Access Training NSD-104 Rev. 33 - Materiel Condition/Housekeeping, Foreign Material Exclusion and Seismic Concerns		
3.3.1.3.3 [Control of Ignition Sources for Leak Testing]	3.3.1.3.3 Open flames or combustion-generated smoke shall not be permitted for leak or air flow testing	Comply	Open flame or combustion-generated smoke is prohibited for use in leak and air flow testing.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 2.c.2] - Design Basis Specification for the Plant Fire Protection		
3.3.1.3.4 [Control of Ignition Sources on Portable Heaters]	3.3.1.3.4* Plant administrative procedure shall control the use of portable electrical heaters in the plant. Portable fuel-fired heaters shall not be permitted in plant areas containing equipment important to nuclear safety or where there is a potential for radiological releases resulting from a fire.	Comply	Portable electric heaters are controlled through administrative directives. Portable fuel-fired heaters are not permitted in the power block.
References	**Document ID** NSD-314 Rev. 14 [Section 314.6] - Hot Work Authorization and Portable Heater Control		
3.3.2 Structural.	3.3.2 Structural. Walls, floors, and components required to maintain structural integrity shall be of noncombustible construction, as defined in NFPA 220, Standard on Types of Building Construction.	Comply	Power block buildings are constructed of non-combustible materials, primarily reinforced concrete or concrete block with structural steel framing.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.2] - Design Basis Specification for the Plant Fire Protection		
3.3.3 Interior Finishes	3.3.3 Interior Finishes. Interior wall or ceiling finish classification shall be in accordance with NFPA 101®, Life Safety Code®, requirements for Class A materials. Interior floor finishes shall be in accordance with NFPA 101 requirements for Class I interior floor finishes.	Comply	The Design Basis Specification for the Plant Fire Protection states that interior wall and structural components, thermal insulation materials and radiation shielding materials and sound proofing materials are non-combusitble. Interior finishes have a flame spread rating of 25 or less and a smoke and fuel contribution of 50 or less in its use configuration. NFPA 101 defines Class A finishes are non-combustible and are defined as those that have a flame spread index of less than or equal to 25 and a smoke developed index of less than or equal to 450. NSD-318 includes the regulatory commitments of this section to state that Service Level I, II, and IV coatings used on interior floors, walls, and ceilings in "power block" buildings are required to meet the requirements of NFPA 805, Section 3.3.3. Implementation Item: Update station documentation to indicate requirements for interior floor finishes. See Implementation Item 17 in Table S-3 of Attachment S.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.a.4] - Design Basis Specification for the Plant Fire Protection NSD-318 Rev. 5 [Section 318.7] - Coatings Program		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.3.4 Insulation Materials	3.3.4 Insulation Materials. Thermal insulation materials, radiation shielding materials, ventilation duct materials, and soundproofing materials shall be noncombustible or limited combustible.	Complies with previous NRC Approval	Some insulation materials around ventilation ducts and cold pipes does not meet the defintion of noncombustible or limited combustible. A letter from Duke to the NRC dated May 11, 1984 requested an exemption for this insulation material: "Rubatex R1800FS cellular foam insulation is used to insulate HVAC ducts and cold pipes. This material has a Flame Spread Index of 25, a Smoke Development Index of 100 (max), and a Fuel Contribution Index of 30. FR/Armaflex insulation may be substituted. This material has a similar combustion characteristic with the exception of the Smoke Development Index which is 150. Appendix A to BTP APCSB 9.5-1 requires that insulating materials such as these have a flame, smoke, and fuel index rating of 25 or less. NUREG 800 requires that these materials be noncombustible. The quantity of these materials used at Catawba is low. Use of these materials does not significantly increase the combustible load of any fire area. Additionally, fire detection is generally provided where these materials are used. As utilized, these materials do not create a hazard justifying replacement or protection. An exemption is therefore requested." The NRC approved this exemption request in the SER, Supplement 3, issued on July 7, 1984. "In the SER, the staff has evaluated the applicant's program to control combustible material in the plant and concluded that it met the NRC fire protection guidelines. By letter dated May 11, 1984, the applicant requested approval for a deviation from the guidelines of Section C.5.a.(9) which required interior finish materials to be noncombustible. The staff defines noncombustible as material that has a flame spread rating not higher than 50 when measured using the test method of ASTM E-84. The applicant indicated that the HVAC duct and pipe insulation to be used have flame spread indexes of 25 or less. This material meets the NRC guidelines and, therefore, the staff has determined that a deviation does not exist." There have been no changes that invalidate the basis for this approval.
References	**Document ID**		
	1984-05-11 Letter [Item 2] - H.B. Tucker Letter to Denton		
	1984-07-01 NRC Safety Evaluation Report [Section 9.5.1.5] - Supplement 3		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
		Comply	The Design Basis Specification for the Plant Fire Protection states that interior wall and structural components, thermal insulation materials and radiation shielding materials and sound proofing materials are non-combusitble. Any new insulation materials would require a screening determination in accordance with NSD-301, "Engineering Change Program", and EDM-601, "Engineering Directives Manual." Part of the screening process is an evaluation of the potential effects on the Fire Protection Program which would require the use of noncombustible or limited combustible materials.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A., Section 4.a.4] - Design Basis Specification for the Plant Fire Protection EDM-601 Rev. 20 - Engineering Change Manual NSD-301 Rev. 41 - Engineering Change Program		
3.3.5 Electrical.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.3.5.1 [Electrical Wiring Above Suspended Ceiling Limitations]	3.3.5.1 Wiring above suspended ceiling shall be kept to a minimum. Where installed, electrical wiring shall be listed for plenum use, routed in armored cable, routed in metallic conduit, or routed in cable trays with solid metal top and bottom covers.	Submit for NRC Approval	Combustibles in concealed spaces are minimized. The Design Basis Specification for the Plant Fire Protection states "Concealed spaces contain only necessary electrical wiring." Power, control, and instrumentation cable used at CNS is armored thereby meeting the requirements of this section. Fiber optic cabling, located in the Control Room suspended ceiling, is plenum rated. Wiring above some suspended ceilings may not meet this requirement. See Attachment L of the License Amendment Request for further details on the request for NRC approval for wiring above suspended ceilings. Implementation Item: Appropriate station documentation will be updated to include the requirements for installation of cable above suspended ceilings. See Implementation Item 7 in Table S-3 of Attachment S.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.a.6, 4.c.10] - Design Basis Specification for the Plant Fire Protection		
3.3.5.2 [Electrical Raceway Construction Limits]	3.3.5.2 Only metal tray and metal conduits shall be used for electrical raceways. Thin wall metallic tubing shall not be used for power, instrumentation, or control cables. Flexible metallic conduits shall only be used in short lengths to connect components.	Comply	Cable trays are constructed of galvanized steel. All exposed conduit is hot-dipped, rigid galvanized steel or rigid aluminum. Thinned wall electrical metallic tubing (EMT) is not used for power, control, or instrumentation.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.c.1] - Design Basis Specification for the Plant Fire Protection DC-3.06 Rev. 3 [Section 4.1.1] - Conduit Systems for Power Plants		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
		Submit for NRC Approval	PVC conduit is permitted in embedded and buried locations. See Attachment L of the License Amendment Request for further details on the request for NRC approval for evaluation of PVC conduits.
References	**Document ID** DC-3.06 Rev. 3 [Section 4.2, 4.3] - Conduit Systems for Power Plants		
3.3.5.3 [Electrical Cable Flame Propagation Limits]	3.3.5.3* Electric cable construction shall comply with a flame propagation test as acceptable to the AHJ.	Comply	The cable used at CNS, classified as either power, control or instrumentation, passed the IEEE 383-1974 Flame Test, or equivalent flame propagation test, which is acceptable as outlined in FAQ 06-0022, "Acceptable Electrical Cable Construction Tests."
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.c.6] - Design Basis Specification for the Plant Fire Protection		
3.3.6 Roofs.	3.3.6 Roofs. Metal roof deck construction shall be designed and installed so the roofing system will not sustain a self-propagating fire on the underside of the deck when the deck is heated by a fire inside the building. Roof coverings shall be Class A as determined by tests described in NFPA 256, Standard Methods of Fire Tests of Roof Coverings.	Comply	Roofs are concrete or noncombustible metal construction. The Reactor Buildings, Auxiliary Building, Diesel Generator Buildings, and the Nuclear Service Water Pump Structure all have reinforced concrete roofs. The Turbine Building has rigid fiber glass insulation and built up roof on top a metal deck. The roof construction was designed in accordance with ASTM 446-1972.
References	**Document ID** CNS-1123.00-00-0001 Rev. 0 - Galvanized Metal Roof Deck CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.a.5] - Design Basis Specification for the Plant Fire Protection		
3.3.7 Bulk Flammable Gas Storage.	3.3.7 Bulk Flammable Gas Storage. Bulk compressed or cryogenic flammable gas storage shall not be permitted inside structures housing systems, equipment, or components important to nuclear safety.	Comply	Bulk flammable gas is not stored in structures housing systems, equipment, or components important to nuclear safety.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.b.2] - Design Basis Specification for the Plant Fire Protection NEWP 7.2 Rev. 1 [Section 3] - Storing Chemicals NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.7.1 [Bulk Flammable Gas Location Requirements]	3.3.7.1 Storage of flammable gas shall be located outdoors, or in separate detached buildings, so that a fire or explosion will not adversely impact systems, equipment, or components important to nuclear safety. NFPA 50A, Standard for Gaseous Hydrogen Systems at Consumer Sites, shall be followed for hydrogen storage.	Complies with Use of EEEE	Hydrogen storage was evaluated by CNC-1435.00-00-0058 "NFPA 50A Code Conformance Review for NFPA 805 Transition". The 1999 edition of NFPA 50A was used.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNC-1435.00-00-0058 Rev. 0 - NFPA 50A Code Conformance Review for NFPA 805 Transition		
		Comply	Bulk gas storage is located in the plant yard, in a separate detached building with each tank restrained to prevent potential damage in the event of a tank failure.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.c.2] - Design Basis Specification for the Plant Fire Protection		
3.3.7.2 [Bulk Flammable Gas Container Restrictions]	3.3.7.2 Outdoor high-pressure flammable gas storage containers shall be located so that the long axis is not pointed at buildings.	Comply	The outdoor high-pressure hydrogen gas storage tanks are oriented with their long axis parallel to the power block buildings.
References	**Document ID** 1983-04-14 Letter - H.B. Tucker Letter to Denton		
3.3.7.3 [Bulk Flammable Gas Cylinder Limitations]	3.3.7.3 Flammable gas storage cylinders not required for normal operation shall be isolated from the system.	Comply	Gas cylinders are isolated when not in use and controlled by various plant directives.
References	**Document ID** NEWP 7.2 Rev. 1 [Section 3] - Storing Chemicals NSD-313 Rev. 13 [Section 313.5.1] - Control of Flammable and Combustible Materials		
3.3.8 Bulk Storage of Flammable and Combustible Liquids.	3.3.8 Bulk Storage of Flammable and Combustible Liquids. Bulk storage of flammable and combustible liquids shall not be permitted inside structures containing systems, equipment, or components important to nuclear safety. As a minimum, storage and use shall comply with NFPA 30, Flammable and Combustible Liquids Code.	Complies with Use of EEEE	Bulk storage of flammable/combustible liquids include the Turbine Oil Transfer Tanks which were installed as part of the original plant design. The bulk oil storage was evaluated by CNC-1435.00-00-0057 "NFPA 30 Code Conformance Review for NFPA 805 Transition." The 1977 edition of NFPA 30 was used.
References	**Document ID** CNC-1435.00-00-0057 Rev. 0 - NFPA 30 Code Conformance Review for NFPA 805 Transition CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 4.b.4] - Design Basis Specification for the Plant Fire Protection		
3.3.9 Transformers.	3.3.9* Transformers. Where provided, transformer oil collection basins and drain paths shall be periodically inspected to ensure that they are free of debris and capable of performing their design function.	Comply	The transformer oil collection basins are periodically inspected to ensure they are free of debris and perform their design function as part of the transformer wet test.
References	**Document ID** PT/1/A/4400/001B Rev. 17 - Automatic Mulsifyre System Test PT/2/A/4400/001B Rev. 16 - Automatic Mulsifyre System Test		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.3.10 Hot Pipes and Surfaces.	3.3.10* Hot Pipes and Surfaces. Combustible liquids, including high flashpoint lubricating oils, shall be kept from coming in contact with hot pipes and surfaces, including insulated pipes and surfaces. Administrative controls shall require the prompt cleanup of oil on insulation.	Comply	Administrative directives ensure, upon identification, the prompt correction of any oil leakage.
References	**Document ID** NSD-104 Rev. 33 [Section 104.5.5] - Materiel Condition/Housekeeping, Foreign Material Exclusion and Seismic Concerns NSD-413 Rev. 9 [Section 413.5.2, 413.4.7] - Fluid Leak Management Program		
3.3.11 Electrical Equipment	3.3.11 Electrical Equipment Adequate clearance, free of combustible material, shall be maintained around energized electrical equipment.	Comply	Administrative directives control combustible material near electrical equipment.
References	**Document ID** NSD-313 Rev. 13 [Section 313.5.2, App. A] - Control of Flammable and Combustible Materials		
3.3.12 Reactor Coolant Pumps	3.3.12* Reactor Coolant Pumps. For facilities with non-inerted containments, reactor coolant pumps with an external lubrication system shall be provided with an oil collection system. The oil collection system shall be designed and installed such that leakage from the oil system is safely contained for off normal conditions such as accident conditions or earthquakes. All of the following shall apply.	Comply	The reactor coolant pump oil collection systems are designed to withstand off normal conditions such as accident conditions or a safe shutdown earthquake (SSE).
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.3, Section 3.o] - Design Basis Specification for the Plant Fire Protection CNS-1533.NC-00-0001 Rev. 35 - Design Basis Specification for the Reactor Coolant (NC) System		
3.3.12 Reactor Coolant Pumps (1)	3.3.12 (1) The oil collection system for each reactor coolant pump shall be capable of collecting lubricating oil from all potential pressurized and nonpressurized leakage sites in each reactor coolant pump oil system.	Comply	The Reactor Coolant Pumps are fitted with enclosures on the upper and lower oil pots as well as around the oil lift pumps. These enclosures are provided to contain any oil spill and direct the spill to the piping that goes to the drain tank. A letter from Duke to the NRC dated February 20, 1984 provided a schematic of the Reactor Coolant Pump Motors with a description of each potential leak source and the associated design feature to collect the leak.
References	**Document ID** 1984-02-20 Letter - H.B. Tucker Letter to Denton CN-1553-01.03 Rev. 20 - Flow Diagram of Reactor Coolant System (NC) CN-2553-01.03 Rev. 16 - Flow Diagram of Reactor Coolant System (NC)		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
		Submit for NRC Approval	The Reactor Coolant Pump oil collection systems are designed and sized to collect and contain oil from potentially pressurized and unpressurized leakage areas in a seismic event resulting in failure of the lubrication system. See Attachment L of the License Amendment Request for further details on the request for NRC approval for evaluation of oil misting from the reactor coolant pumps/motors.
3.3.12 Reactor Coolant Pumps (2)	3.3.12 (2) Leakage shall be collected and drained to a vented closed container that can hold the inventory of the reactor coolant pump lubricating oil system.	Comply	Leakage oil is drained to a vented closed container capable of containing the maximum potential inventory.
References	**Document ID**		
	CN-1553-01.03 Rev. 20 - Flow Diagram of Reactor Coolant System (NC)		
	CN-2553-01.03 Rev. 16 - Flow Diagram of Reactor Coolant System (NC)		
	CNC-1223.03-00-0002 - RCP Motor Oil Fill Tank Data Sheet		
	CNS-1465.00-00-0006 Rev. 22 [App. A.3, Section 2.o] - Design Basis Specification for the Plant Fire Protection		
3.3.12 Reactor Coolant Pumps (3)	3.3.12 (3) A flame arrestor is required in the vent if the flash point characteristics of the oil present the hazard of a fire flashback.	Comply	The oil used in the Reactor Coolant Pumps has a minimum flash point of 400°F. Discussions with the system engineer identify the oil used in the pumps is Chevron GST. The oil vapors from the RCP oil collection tanks would not be exposed to temperatures near the flashpoints. Therefore, flame arrestors are not required.
References	**Document ID**		
	Material Safety Data Sheet - Chevron GST Oil		
3.3.12 Reactor Coolant Pumps (4)	3.3.12 (4) Leakage points on a reactor coolant pump motor to be protected shall include but not be limited to the lift pump and piping, overflow lines, oil cooler, oil fill and drain lines and plugs, flanged connections on oil lines, and the oil reservoirs, where such features exist on the reactor coolant pumps.	Comply	All potentially vulnerable points on the Reactor Coolant Pumps are protected by components capable of containing the leaks. The Reactor Coolant Pumps are fitted with enclosures on the upper and lower oil pots as well as around the oil lift pumps.
References	**Document ID**		
	1984-02-20 Letter - H.B. Tucker Letter to Denton		
	CN-1553-01.03 Rev. 20 - Flow Diagram of Reactor Coolant System (NC)		
	CN-2553-01.03 Rev. 16 - Flow Diagram of Reactor Coolant System (NC)		
3.3.12 Reactor Coolant Pumps (5)	3.3.12 (5) The collection basin drain line to the collection tank shall be large enough to accommodate the largest potential oil leak such that oil leakage does not overflow the basin.	Comply	The Reactor Coolant Pump drain tanks are capable of containing the maximum possible oil spill from the Reactor Coolant Pumps. The drain lines are properly sized to prevent an overflow of the basin.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNC-1223.03-00-0002 - RCP Motor Oil Fill Tank Data Sheet CNS-1465.00-00-0006 Rev. 22 [App. A.3, Section 3.o] - Design Basis Specification for the Plant Fire Protection		
3.4 Industrial Fire Brigade.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.4.1 On-Site Fire-Fighting Capability	3.4.1 On-Site Fire-Fighting Capability. All of the following requirements shall apply.	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.4.1 On-Site Fire-Fighting Capability (a)	3.4.1 (a) A fully staffed, trained, and equipped fire-fighting force shall be available at all times to control and extinguish all fires on site. This force shall have a minimum complement of five persons on duty and shall conform with the following NFPA standards as applicable:	Complies with previous NRC Approval	SLC 16.13.1 "Fire Brigade" states: A site Fire Brigade of at least five members shall be maintained onsite. If the fire brigade composition is not met then restore mimimum fire brigade compostion within 2 hours. SLC 16.13.4 identifies the fire brigade requirement is met by using personnel from Operations and SPOC. 3 personnel from Operations are required (including the fire brigade leader) and the other 2 personnel are from SPOC. SLC 16.13.4 "Minimum Station Staffing Requirements" identifies the same requirements as SLC 16.13.1 and states "The 2-hour remedial action for restoring minimum station staffing levels is consistent with TS 5.2.2c and 5.2.2d, which allow 2 hours to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements." This staffing position is documented in the Catawba Units 1 and 2 Technical Specificaitons, section 5.2.2.c which states "Shift crew composition may be less than the minimum requirement of 10 CFR 50.54 (m)(2)(i) and 5.2.2.a and 5.2.2.g for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the mnimum requirements." This reflects the current CNS fire brigade organization. This position is in accordance with FAQ 12-0063.
References	**Document ID** SLC 16.13-1 Rev. 0 - Fire Brigade SLC 16.13-4 Rev. 0 - Minimum Station Staffing Requirements Technical Specifications Rev. 253/248 [Section 5.2.2.c] - Catawba Units 1 and 2 Technical Specifications		
3.4.1 On-Site Fire-Fighting Capability (a)(1)	3.4.1 (a)(1) NFPA 600, Standard on Industrial Fire Brigades (interior structural fire fighting)	Complies with Use of EEEE	The onsite Fire Brigade is appropriately staffed, trained, and equipped and complies with NFPA 600, 2005 edition.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNC-1435.00-00-0062 Rev. 0 - NFPA 600 Code Conformance Review for NFPA 805 Transition		
3.4.1 On-Site Fire-Fighting Capability (a)(2)	3.4.1 (a)(2) NFPA 1500, Standard on Fire Department Occupational Safety and Health Program	N/A	NFPA 1500 does not apply to CNS.
3.4.1 On-Site Fire-Fighting Capability (a)(3)	3.4.1 (a)(3) NFPA 1582, Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians	N/A	NFPA 1582 does not apply to CNS.
3.4.1 On-Site Fire-Fighting Capability (b)	3.4.1 (b) * Industrial fire brigade members shall have no other assigned normal plant duties that would prevent immediate response to a fire or other emergency as required.	Comply	The fire brigade is appropriately staffed and members are independent of other responsibilities during a fire emergency.
References	**Document ID** NSD-112 Rev. 11 [Section 112.2.7] - Fire Brigade Organization, Training & Responsibilities SLC 16.13-1 Rev. 0 - Fire Brigade SLC 16.13-4 Rev. 0 - Minimum Station Staffing Requirements		
3.4.1 On-Site Fire-Fighting Capability (c)	3.4.1 (c) During every shift, the brigade leader and at least two brigade members shall have sufficient training and knowledge of nuclear safety systems to understand the effects of fire and fire suppressants on nuclear safety performance Exception: Sufficient training and knowledge shall be permitted to be provided by an operations advisor dedicated to industrial fire brigade support criteria.	Comply	Station directive dictates that during each shift the Fire Brigade Leader and a minimum of two brigade members have sufficient training and knowledge of the nuclear safety systems to understand the effects of fire and fire suppressants on the nuclear safety performance.
References	**Document ID** NSD-112 Rev. 11 [Section 112.2.7] - Fire Brigade Organization, Training & Responsibilities		
3.4.1 On-Site Fire-Fighting Capability (d)	3.4.1 (d) * The industrial fire brigade shall be notified immediately upon verification of a fire.	Comply	The industrial fire brigade is notified immediately upon verification of a fire.
References	**Document ID** NSD-112 Rev. 11 [Section 112.2.6] - Fire Brigade Organization, Training & Responsibilities RP/0/B/5000/029 Rev. 27 [Enclosure 4.1] - Fire Brigade Response		
3.4.1 On-Site Fire-Fighting Capability (e)	3.4.1 (e) Each industrial fire brigade member shall pass an annual physical examination to determine that he or she can perform the strenuous activity required during manual fire-fighting operations. The physical examination shall determine the ability of each member to use respiratory protection equipment.	Comply	Annual physical examinations are required to remain on the "Active" list for industrial fire brigade members. The physical examinations include the use of respiratory protection equipment.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** NSD-112 Rev. 11 [Section 112.4] - Fire Brigade Organization, Training & Responsibilities		
3.4.2 Pre-Fire Plans.	3.4.2* Pre-Fire Plans. Current and detailed pre-fire plans shall be available to the industrial fire brigade for all areas in which a fire could jeopardize the ability to meet the performance criteria described in Section 1.5.	Comply	Current and detailed Fire Strategies (pre-fire plans) are available for all plant locations that contain systems or components that could impact nuclear safety performance or present a potential for radioactive releases or life safety.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies -		
3.4.2.1 [Pre-Fire Plan Contents]	3.4.2.1* The plans shall detail the fire area configuration and fire hazards to be encountered in the fire area, along with any nuclear safety components and fire protection systems and features that are present.	Comply	Detailed pre-fire plans are available in the Catawba Nuclear Site Fire Strategies. The Fire Strategies contain the following information: • A graphic representations of the various plant areas that depict the installed fire protection/suppression features • Equipment important to safety and other potentially affected equipment • A listing of special hazards including: Radiological, Electrical, Chemical, Physical, and Flammable Liquids Gases • Notes such as special access, special concerns, ventilation, etc Implementation Item: The Fire Strategies will be reviewed and updated to include any changes to equipment important to nuclear safety and other updates pertinent to the NFPA 805 Transition. See Implementation Item 8 in Table S-3 of Attachment S.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies -		
3.4.2.2 [Pre-Fire Plan Updates]	3.4.2.2 Pre-fire plans shall be reviewed and updated as necessary.	Comply	The Site Fire Strategies are maintained current. Plant directives, for modification to plant features and equipment, require a review for potential impact to the Fire Strategies.
References	**Document ID** EDM-601 Rev. 20 - Engineering Change Manual NSD-301 Rev. 41 - Engineering Change Program		
3.4.2.3 [Pre-Fire Plan Locations]	3.4.2.3* Pre-fire plans shall be available in the control room and made available to the plant industrial fire brigade.	Comply	The Fire Strategies are available in the control room and to the Fire Brigade Leader in the Fire Brigade Leader's Resource Kits.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** PT/0/B/4600/032 Rev. 15 - Fire Brigade Equipment Inspection/Inventory RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.4.2.4 [Pre-Fire Plan Coordination Needs]	3.4.2.4* Pre-fire plans shall address coordination with other plant groups during fire emergencies.	Complies with Clarification	Fire Strategies (pre-fire plans), plant directives, and fire brigade procedures address coordination with other plant groups.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies - NSD-112 Rev. 11 [Section 112.2] - Fire Brigade Organization, Training & Responsibilities RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.4.3 Training and Drills	3.4.3 Training and Drills. Industrial fire brigade members and other plant personnel who would respond to a fire in conjunction with the brigade shall be provided with training commensurate with their emergency responsibilities.	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.4.3 Training and Drills (a)(1)	3.4.3 (a) Plant Industrial Fire Brigade Training. All of the following requirements shall apply. (1) Plant industrial fire brigade members shall receive training consistent with the requirements contained in NFPA 600, Standard on Industrial Fire Brigades, or NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, as appropriate.	Complies with Use of EEEE	CNS Fire Brigade members receive training consistent with NFPA 600, 2005 edition. NFPA 1500 is not applicable to CNS.
References	**Document ID** CNC-1435.00-00-0062 Rev. 0 - NFPA 600 Code Conformance Review for NFPA 805 Transition NSD-112 Rev. 11 - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (a)(2)	3.4.3 (a)(2) Industrial fire brigade members shall be given quarterly training and practice in fire fighting, including radioactivity and health physics considerations, to ensure that each member is thoroughly familiar with the steps to be taken in the event of a fire.	Comply	Quarterly examinations and training sessions are administered for all fire brigade personnel to remain on the "Active" list. Training includes fire fighting strategies in radiological areas.
References	**Document ID** CNS Addendum 7111.0 Rev. 11 - Catawba Nuclear Station Nuclear Site Emergency Response (ER) Training Program Description NSD-112 Rev. 11 [Section 112.4] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (a)(3)	3.4.3 (a)(3) A written program shall detail the industrial fire brigade training program.	Comply	CNS maintains a written program detailing the industrial fire brigade training program.

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNS Addendum 7111.0 Rev. 11 - Catawba Nuclear Station Nuclear Site Emergency Response (ER) Training Program Description NSD-112 Rev. 11 [Section 112.4] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (a)(4)	3.4.3 (a)(4) Written records that include but are not limited to initial industrial fire brigade classroom and hands-on training, refresher training, special training schools attended, drill attendance records, and leadership training for industrial fire brigades shall be maintained for each industrial fire brigade member.	Comply	Drill and training records for fire brigade members are maintained, including initial training, refresher training, drills, and fire brigade leader training.
References	**Document ID** NSD-112 Rev. 11 - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (b)	3.4.3 (b) Training for Non-Industrial Fire Brigade Personnel. Plant personnel who respond with the industrial fire brigade shall be trained as to their responsibilities, potential hazards to be encountered, and interfacing with the industrial fire brigade.	Comply	Other non-fire brigade personnel that respond to a fire incident are informed of their responsibilities and interfaces with the fire brigade. Implementation Item: Develop formal training program for non-fire brigade personnel that respond to a fire incident. See Implementation Item 14 in Table S-3 of Attachment S.
References	**Document ID** NSD-112 Rev. 11 [Section 112.2] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (c)(1)	3.4.3 (c) * Drills. All of the following requirements shall apply. (1) Drills shall be conducted quarterly for each shift to test the response capability of the industrial fire brigade.	Comply	The fire brigade conducts quarterly drills for each shift.
References	**Document ID** NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (c)(2)	3.4.3 (c)(2) Industrial fire brigade drills shall be developed to test and challenge industrial fire brigade response, including brigade performance as a team, proper use of equipment, effective use of pre-fire plans, and coordination with other groups. These drills shall evaluate the industrial fire brigade's abilities to react, respond, and demonstrate proper fire-fighting techniques to control and extinguish the fire and smoke conditions being simulated by the drill scenario.	Comply	Drills are developed to challenge the industrial fire brigade and the responses are evaluated, critiqued, and documented.
References	**Document ID** NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (c)(3)	3.4.3 (c)(3) Industrial fire brigade drills shall be conducted in various plant areas, especially in those areas identified to be essential to plant operation and to contain significant fire hazards.	Comply	Drills are conducted in various plant areas, especially in those areas identified to be essential to plant operation and to containing significant fire hazards.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (c)(4)	3.4.3 (c)(4) Drill records shall be maintained detailing the drill scenario, industrial fire brigade member response, and ability of the industrial fire brigade to perform as a team.	Comply	Drill records are maintained and performance critiques are conducted which document the scenario, attendance, and performance of the fire brigade.
References	**Document ID** NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.3 Training and Drills (c)(5)	3.4.3 (c)(5) A critique shall be held and documented after each drill.	Comply	Each fire drill is critiqued and the critique is documented and maintained.
References	**Document ID** NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.4 Fire-Fighting Equipment.	3.4.4 Fire-Fighting Equipment. Protective clothing, respiratory protective equipment, radiation monitoring equipment, personal dosimeters, and fire suppression equipment such as hoses, nozzles, fire extinguishers, and other needed equipment shall be provided for the industrial fire brigade. This equipment shall conform with the applicable NFPA standards.	Comply	The appropriate fire fighting equipment is located in each fire area and on the fire brigade equipment carts. Radiation Protection Technicians will respond with appropriate radiological monitoring equipment. Equipment is purchased by the Emergency Service Coordinator who ensures that the equipment complies with applicable NFPA standards.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies - PT/0/B/4600/032 Rev. 15 - Fire Brigade Equipment Inspection/Inventory RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.4.5 Off-Site Fire Department Interface.	N/A	N/A	
3.4.5.1 Mutual Aid Agreement.	3.4.5.1 Mutual Aid Agreement. Off-site fire authorities shall be offered a plan for their interface during fires and related emergencies on site.	Comply	Offsite fire departments are provided a plan for interface during fires and other conditions requiring the use of the fire fighting resources through Letters of Agreement. The Letters of Agreement identify the responding organizations would be under the direct guidance of CNS personnel. In addition, the Offsite Fire Department Strategy indicates that communciation will be established with the CNS Fire Brigade Leader as the point of contact.
References	**Document ID** Catawba Emergency Plan [Appendix 5] - RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.4.5.2 Site-Specific Training.	3.4.5.2* Site-Specific Training. Fire fighters from the off-site fire authorities who are expected to respond to a fire at the plant shall be offered site-specific training and shall be invited to participate in a drill at least annually.	Comply	Annual training is specified in the Letters of Agreement with the off-site fire authorities. The training includes topics in fire protection, radiation protection, station familiarization, and station security procedures.
References	**Document ID** Addendum 7111.0 Rev. 11 - Catawba Nuclear Station Site Emergency Response (ER) Training Program Description Catawba Emergency Plan [Appendix 5] - NSD-112 Rev. 11 [Section 112.5] - Fire Brigade Organization, Training & Responsibilities		
3.4.5.3 Security and Radiation Protection.	3.4.5.3* Security and Radiation Protection. Plant security and radiation protection plans shall address off-site fire authority response.	Comply	Site documents include Security and Radiation Protection provisions for assistance to offsite fire authorities.
References	**Document ID** NSD-112 Rev. 11 [Section 112.2.9, 112.2.10] - Fire Brigade Organization, Training & Responsibilities RP/0/B/5000/029 Rev. 27 [Enclosure 3.4] - Fire Brigade Response		
3.4.6 Communications.	3.4.6* Communications. An effective emergency communications capability shall be provided for the industrial fire brigade.	Comply	Emergency communication capabilities include the telephone system, public address system, and radios.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection RP/0/B/5000/029 Rev. 27 [App. A.1, Section 4.e.3] - Fire Brigade Response		
3.5 Water Supply	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.5.1 [Water Supply Flow Code Requirements]	3.5.1 A fire protection water supply of adequate reliability, quantity, and duration shall be provided by one of the two following methods. (a) Provide a fire protection water supply of not less than two separate 300,000-gal (1,135,500-L) supplies. (b) Calculate the fire flow rate for 2 hours. This fire flow rate shall be based on 500 gpm (1892.5 L/min) for manual hose streams plus the largest design demand of any sprinkler or fixed water spray system(s) in the power block as determined in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, or NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection. The fire water supply shall be capable of delivering this design demand with the hydraulically least demanding portion of fire main loop out of service.	Comply	CNS complies via method (b). CNS determined the largest sprinkler system and hose demand for any system is 3,645 gpm. The fire flow rate for two hours is 437,400 gallons. The water supply for the fire protection system is Lake Wylie which has a capacity well in excess of this volume. Fire water supply has been calculated with the hydraulically least demanding portion of the fire main loop out of service.

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** 1983-04-14 Letter - H.B. Tucker Letter to Denton CNC-1223.49-00-0003 Rev. 11 - RF/RY Auxiliary Building CNC-1223.49-00-0004 Rev. 15 - Non-Safety RF/RY CNC-1223.49-00-0006 Rev. 0 - Non Safety RF/RY (Fire Protection) CNC-1223.49-00-0007 Rev. 1 - RF/RY Auxiliary Building CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.b] - Design Basis Specification for the Plant Fire Protection		
3.5.2 [Water Supply Tank Code Requirements]	3.5.2* The tanks shall be interconnected such that fire pumps can take suction from either or both. A failure in one tank or its piping shall not allow both tanks to drain. The tanks shall be designed in accordance with NFPA 22, Standard for Water Tanks for Private Fire Protection. Exception No. 1: Water storage tanks shall not be required when fire pumps are able to take suction from a large body of water (such as a lake), provided each fire pump has its own suction and both suctions and pumps are adequately separated. Exception No. 2: Cooling tower basins shall be an acceptable water source for fire pumps when the volume is sufficient for both purposes and water quality is consistent with the demands of the fire service.	Comply	CNS does not utilize tanks for fire protection water. CNS complies via Exception 1 and draws water from Lake Wylie as the primary fire water source. The Main Fire Pumps are provided with separate suctions to Lake Wylie.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.b] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.1] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.5.3 [Water Supply Pump Code Requirements]	3.5.3* Fire pumps, designed and installed in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, shall be provided to ensure that 100 percent of the required flow rate and pressure are available assuming failure of the largest pump or pump power source.	Complies with Use of EEEE	The Main Fire Pumps were evaluated in accordance with NFPA 20, 1978 edition. Three fire pumps are provided and each is sized to provide 100 percent of the required flow rate and pressure.
References	**Document ID** CNC-1435.00-00-0055 Rev. 0 - NFPA 20 Code Conformance Review for NFPA 805 Transition		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.5.4 [Water Supply Pump Diversity and Redundancy]	3.5.4 At least one diesel engine-driven fire pump or two more seismic Category I Class IE electric motor-driven fire pumps connected to redundant Class IE emergency power buses capable of providing 100 percent of the required flow rate and pressure shall be provided.	Complies with previous NRC Approval	CNS does not utilize diesel-engine driven fire water pumps. CNS uses three electric fire pumps capable of each providing 100% of the required flow and pressure. The 1983 NRC Safety Evaluation Report states: "The water supply system consists of three fire pumps separately connected to a buried 12-in. cement-lined water main loop around the station. All three fire pumps are electrically driven, each rated 2,500 gpm at 144 psig. The three fire pumps have independent power supplies and controls. Two fire pumps are supplied by separate station diesel generators." "Based on its review, the staff concluses that the water supply system meets the guidelines of BTP CMEB 9.5-1, Item C.6.b, and is, therefore, acceptable." There have been no changes to invalidate the basis for this approval.
References	**Document ID** 1983-02-01 NRC Safety Evaluation Report [Section 9.5.1.7] - NRC Safety Evaluation Report CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.b.3] - Design Basis Specification for the Plant Fire Protection		
3.5.5 [Water Supply Pump Separation Requirements]	3.5.5 Each pump and its driver and controls shall be separated from the remaining fire pumps and from the rest of the plant by rated fire barriers.	Complies with previous NRC Approval	There are three fire pumps at CNS. Each fire pump has an independent power supply. The 1983 NRC Safety Evaluation Report states: "Two of the three fire pumps are located in the same bay of the intake structure and are separated by a three-hour rated fire barrier. The third pump is located in an adjacent bay." "Based on its review, the staff concludes that the water supply system meets the guidelines of BTP CMEB 9.5-1, Item C.6.b, and is, therefore, acceptable." The NRC performed a site audit and indicated the licensee should protect the pumps and cables. Catawba provided a response in the February 10, 1984 letter: "To conform with Section C.6.6 of BTP CMEB 9.5-1, the fire pumps and related cables should be protected so that one fire pump will remain undamaged and functional after a fire. We observed that all three fire pumps could be rendered inoperable if a fire occurred at the intake structure. To meet this guideline, the applicant should protect the pumps and cables so that at least one will remain undamaged after a fire. Response: A hour fire rated "wrap" will be installed on the conduit containing cables for Pump B from the location where the cables penetrate the intake structure beneath Pump B to the east side of the intake structure, The fire rated block wall between Pumps A and B will be extended westward to the edge of the trench drain and south approximately 5 feet to effect an "L" shaped configuration." The July 1984 NRC Safety Evaluation Report (No. 3) states: "The staff was concerned that all three fire pumps could be rendered inoperable if a fire occurred at the intake structure. This was also observed for the related cables serving these pumps. By letter dated February 10, 1984, the applicant committed to install a 1-hour fire rated wrap on the conduit and

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
			supports containing cables for fire Pump B from the location where the cables penetrate the intake structure beneath Pump B to the east side of the intake structure. The fire rated block wall between Pumps A and B will be extended westward to the edge of the trench drain and south approximately 5 feet to effect an "L" shape configuration. The staff finds this acceptable." The basis for this approval remain valid with the exception the 1-hour fire wrap for the B Fire Pump power cable is no longer credited. See the Submit for NRC Approval Compliance Statement and Attachment L of the License Amendment Request for further details on the power cable protection.
References	**Document ID** 1983-02-01 NRC Safety Evaluation Report [Section 9.5.1.7] - NRC Safety Evaluation Report 1984-02-10 Letter - H.B. Tucker Letter to Denton 1984-07-01 NRC Safety Evaluation Report [Section 9.5.1.7] - Supplement 3		
		Comply	The A Fire Pump, B Fire Pump, and C Fire Pump are spatially separated in the Low Pressure Service Water Pumphouse. The A and B Fire Pumps are separated by a fire rated wall. The C Fire Pump is separated from the B Fire Pump via distance. Power and control cables are routed in steel conduit under the operating deck. See the previous approval and approval request for the complete compliance basis.
References	**Document ID** CN-1340-10 Rev. 13 - Low Pressure Service Water Intake Structure General Arrangement Plan, Sections & Details CN-1939-01 Rev. 23 - Electrical Equipment Layout Low Pressure Service Water Intake Structure Plan & Sections		
		Submit for NRC Approval	The power cable for the B Main Fire Pump are not protected. See Attachment L of the License Amendment Request for further details on the request for NRC approval of the lack of protection of the B Main Fire Pump Power Cable.
3.5.6 [Water Supply Pump Start/Stop Requirements]	3.5.6 Fire pumps shall be provided with automatic start and manual stop only.	Comply	The Main Fire Pumps are provided with automatic start upon system pressure drop. Once actuated the Main Fire Pumps can only be shut off by the manual stop.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [Section 3.3.1.1] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.2.1.2] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.5.7 [Water Supply Pump Connection Requirements]	3.5.7 Individual fire pump connections to the yard fire main loop shall be provided and separated with sectionalizing valves between connections.	Comply	Each Main Fire Pump is provided with a separate connection to the underground main fire loop. Sectional control valves are provided to isolate portions of the yard fire main.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CN-1599-01.00 Rev. 40 - Flow Diagram of Exterior Fire Protection System (RY)		
3.5.8 [Water Supply Pressure Maintenance Limitations]	3.5.8 A method of automatic pressure maintenance of the fire protection water system shall be provided independent of the fire pumps.	Comply	The fire protection system pressure is maintained by three jockey pumps that start and shut-off automatically.
References	**Document ID** CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.1.1, 3.3.1.2] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.5.9 [Water Supply Pump Operation Notification]	3.5.9 Means shall be provided to immediately notify the control room, or other suitable constantly attended location, of operation of fire pumps.	Comply	The Control Room(s) are automatically notified of operation of the Main Fire Pumps via control room annunciator panel indication.
References	**Document ID** CNS-1599.RF-00-0001 Rev. 20 [Section 3.5.2] - Design Basis Specification for the Fire Protection System (RF/RY) OP/1/B/6100/010 N Rev. 49 - Annunciator Response for Panel 1AD-13		
3.5.10 [Water Supply Yard Main Code Requirements]	3.5.10 An underground yard fire main loop, designed and installed in accordance with NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, shall be installed to furnish anticipated water requirements.	Comples with Use of EEEE	An underground fire loop is provided around the perimeter of the plant to service fire protection requirements. The underground fire water piping system was evaluated in accordance with NFPA 24, 1977 edition.
References	**Document ID** CNC-1435.00-00-0056 Rev. 0 - NFPA 24 Code Conformance Review for NFPA 805 Transition		
3.5.11 [Water Supply Yard Main Maintenance Issues]	3.5.11 Means shall be provided to isolate portions of the yard fire main loop for maintenance or repair without simultaneously shutting off the supply to both fixed fire suppression systems and fire hose stations provided for manual backup. Sprinkler systems and manual hose station standpipes shall be connected to the plant fire protection water main so that a single active failure or a crack to the water supply piping to these systems can be isolated so as not to impair both the primary and backup fire suppression systems.	Comply	Sectionalizing valves are provided to allow isolation of various sections of the fire water system for maintenance or repair. The Design Basis Specification for Fire Protection states: Each sprinkler system and manual hose station standpipe has an independent connection to the fire protection header; therefore, a single failure cannot impair both the primary and backup Fire Protection Systems outside containment. The Design Basis Specification for the Fire Protection System (RF/RY) states: The guidelines for the application of the single failure criterion are documented in [Specification CNS-1465.00-00-0001, Plant Design Basis for Systems Single Failure]. The portion of the RF/RY System protecting safety related equipment shall be designed to ensure that a single failure will not impair both the primary and backup fire suppression capability.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CN-1599-01.00 Rev. 40 - Flow Diagram of Exterior Fire Protection System (RY) CNC-1435.00-00-0056 Rev. 0 [Section 3.5] - NFPA 24 Code Conformance Review for NFPA 805 Transition CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.c.1] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 2.2.1] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.5.12 [Water Supply Compatible Thread Connections]	3.5.12 Threads compatible with those used by local fire departments shall be provided on all hydrants, hose couplings, and standpipe risers. Exception: Fire departments shall be permitted to be provided with adapters that allow interconnection between plant equipment and the fire department equipment if adequate training and procedures are provided.	Comply	Threads compatible with those used by the local fire fighting agencies are provided on fire hydrants, hose coupling, and standpipe risers.
References	**Document ID** CNC-1435.00-00-0054 Rev. 0 [Section 4-4.4] - NFPA 14 Code Conformance Review for NFPA 805 Transition CNC-1435.00-00-0056 Rev. 0 [Section 4-1.2] - NFPA 24 Code Conformance Review for NFPA 805 Transition		
3.5.13 [Water Supply Header Options]	3.5.13 Headers fed from each end shall be permitted inside buildings to supply both sprinkler and standpipe systems, provided steel piping and fittings meeting the requirements of ANSI B31.1, Code for Power Piping, are used for the headers (up to and including the first valve) supplying the sprinkler systems where such headers are part of the seismically analyzed hose standpipe system. Where provided, such headers shall be considered an extension of the yard main system. Each sprinkler and standpipe system shall be equipped with an outside screw and yoke (OS&Y) gate valve or other approved shutoff valve.	Comply	CNS licensing commitments do not require seismically designed standpipe systems. Each sprinkler and standpipe system is provided with a shutoff valve. An OS&Y control valve is normally provided for each sprinkler system. Standpipe systems are provided with shutoff valves as shown on drawing series CN-1599 and CN-2599, "Flow Diagram of Fire Protection System (RF)."
References	**Document ID** CN-1599 Catawba Nuclear Station Drawing Series - Flow Diagram of Fire Protection System (RF) CN-2599 Catawba Nuclear Station Drawing Series - Flow Diagram of Fire Protection System (RF) CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.c.1] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.2.1] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.5.14 [Water Supply Control Valve Supervision]	3.5.14* All fire protection water supply and fire suppression system control valves shall be under a periodic inspection program and shall be supervised by one of the following methods. (a) Electrical supervision with audible and visual signals in the main control room or other suitable constantly attended location. (b) Locking valves in their normal position. Keys shall be made available only to authorized personnel. (c) Sealing valves in their normal positions. This option shall be utilized only where valves are located within fenced areas or under the direct	Comply	Fire protection valves are electronically monitored in the Control Room or their position is locked or sealed in place. Procedures are in place to inspect valve positions for all valves that are locked or sealed in place.

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
	control of the owner/operator.		
References	**Document ID**		
	CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.c.2] - Design Basis Specification for the Plant Fire Protection		
	CNS-1599.RF-00-0001 Rev. 20 [Section 3.3.2] - Design Basis Specification for the Fire Protection System (RF/RY)		
	PT/1/A/4400/001K Rev. 31 - Fire Suppression System Valve Operability Check		
	PT/1/A/4400/001M Rev. 16 - Unit 1 Fire Suppression System Containment Valve Operability		
	PT/2/A/4400/001K Rev. 13 - Fire Suppression System Valve Operability Check		
	PT/2/A/4400/001M Rev. 8 - Unit 2 Fire Suppression System Containment Valve Operability		
3.5.15 [Water Supply Hydrant Code Requirements]	3.5.15 Hydrants shall be installed approximately every 250 ft (76 m) apart on the yard main system. A hose house equipped with hose and combination nozzle and other auxiliary equipment specified in NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, shall be provided at intervals of not more than 1000 ft (305 m) along the yard main system. Exception: Mobile means of providing hose and associated equipment, such as hose carts or trucks, shall be permitted in lieu of hose houses. Where provided, such mobile equipment shall be equivalent to the equipment supplied by three hose houses.	Complies with Use of EEEE	The hose houses were evaluated for compliance in the NFPA 24 Code Conformance Review.
		Comply	Hydrants are installed at a maximum of 250 ft on the yard main system. Hose houses are installed at a maximum of 1000 ft (approximately 500 feet at every other hydrant).
References	**Document ID**		
	CNC-1435.00-00-0056 Rev. 0 [Section 4-2.1, 5-1.1] - NFPA 24 Code Conformance Review for NFPA 805 Transition		
3.5.16 [Water Supply Dedicated Limits]	3.5.16* The fire protection water supply system shall be dedicated for fire protection use only. Exception No. 1: Fire protection water supply systems shall be permitted to be used to provide backup to nuclear safety systems, provided the fire protection water supply systems are designed and maintained to deliver the combined fire and nuclear safety flow demands for the duration specified by the applicable analysis. Exception No. 2: Fire protection water storage can be provided by plant systems serving other functions, provided the storage has a dedicated capacity capable of providing the maximum fire protection demand for the specified duration as determined in this section.	Comply	CNS complies with Exception 1. The fire water (RF/RY) system provides backup for the Low Pressure Service Water (RL) pumps motor bearing coolers (three pump motors) by design. Flow is automatically aligned when the normal supply pressure drops. Flow from the RF/RY sysem to each RL pump is approximately 3 gpm. The total RF/RY flow to all three RL pumps is less than 10 gpm. This additional designed flow is within the fire water supply capacity.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNS-1599.RF-00-0001 Rev. 20 - Design Basis Specification for the Fire Protection System (RF/RY)		
3.6 Standpipe and Hose Stations.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.6.1 [Standpipe and Hose Station Code Requirements]	3.6.1 For all power block buildings, Class III standpipe and hose systems shall be installed in accordance with NFPA 14, Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems.	Complies with Use of EEEE	CNS power block areas are provided with a Class III standpipe system which was evaluated in accordance with NFPA 14, 1978 edition.
References	**Document ID** CNC-1435.00-00-0054 Rev. 0 - NFPA 14 Code Conformance Review for NFPA 805 Transition		
3.6.2 [Standpipe and Hose Station Capability Limitations]	3.6.2 A capability shall be provided to ensure an adequate water flow rate and nozzle pressure for all hose stations. This capability includes the provision of hose station pressure reducers where necessary for the safety of plant industrial fire brigade members and off-site fire department personnel.	Comply	The fire water supply system can provide adequate water flow and nozzle pressure at the hose stations. Pressure reducing devices are not required as the nozzles are adjustible for pressure and the fire brigade is trained on the use of hose streams expected at the site.
References	**Document ID** CNC-1435.00-00-0054 Rev. 0 [Section 4-4.2, 5] - NFPA 14 Code Conformance Review for NFPA 805 Transition		
3.6.3 [Standpipe and Hose Station Nozzle Restrictions]	3.6.3 The proper type of hose nozzle to be supplied to each power block area shall be based on the area fire hazards. The usual combination spray/straight stream nozzle shall not be used in areas where the straight stream can cause unacceptable damage or present an electrical hazard to fire-fighting personnel. Listed electrically safe fixed fog nozzles shall be provided at locations where high-voltage shock hazards exist. All hose nozzles shall have shutoff capability and be able to control water flow from full open to full closed.	Comply	The appropriate hose nozzles have been provided. CNS uses nozzles with an adjustable stream from full on straight stream to fog with a shut off capacity.
References	**Document ID** CNC-1435.00-00-0054 Rev. 0 [Section 4-4.2] - NFPA 14 Code Conformance Review for NFPA 805 Transition		
3.6.4 [Standpipe and Hose Station Earthquake Provisions]	3.6.4 Provisions shall be made to supply water at least to standpipes and hose stations for manual fire suppression in all areas containing systems and components needed to perform the nuclear safety functions in the event of a safe shutdown earthquake (SSE).	Complies by Previous NRC Approval	The NRC previously approved the hose stations in regards to the NFPA 14 -1976 edition which does not contain provisions for seismically designed hose stations. The 1983 SER states: "Interior manual hose stations are provided and equipped to reach any plant location with at least one effective hose stream. Each hose station is provided with a maximum of 100 ft of 1 1/2-in. hose with a spray nozzle to provide adequate coverage. The staff finds that the hose stations meet the guidelines of BTP CMEB 9.5-1, Item C.6.c, and are, therefore, acceptable. The applicant has not identified seismic design of standpipe systems,

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
			which is recommended in BTP CMEB 9.5-1, Item C.6.c(1). For plants with construction permits issued before July 30, 1976, the guidelines contained in Appendix A to BTP ASB 9.5-1 have no requirement for seismic design of standpipe systems. Therefore, this is an acceptable deviation from the guidelines of CMEB 9.5-1, Item C.6.c(1)." There have been no changes to invalidate the basis for this approval.
References	**Document ID** 1983-02-01 NRC Safety Evaluation Report [Section 9.5.1.7] - NRC Safety Evaluation Report		
3.6.5 [Standpipe and Hose Station Seismic Connection Limitations]	3.6.5 Where the seismic required hose stations are cross-connected to essential seismic non-fire protection water supply systems, the fire flow shall not degrade the essential water system requirement.	N/A	CNS does not have seismic required hose stations.
3.7 Fire Extinguishers.	3.7 Fire Extinguishers. Where provided, fire extinguishers of the appropriate number, size, and type shall be provided in accordance with NFPA 10, Standard for Portable Fire Extinguishers. Extinguishers shall be permitted to be positioned outside of fire areas due to radiological conditions.	Complies with Use of EEEE	Fire extinguishers, where provided, are in accordance with NFPA 10, 1978 edition, and meet the associated number, size, and type requirements. Distribution/location was evaluated in CNC-1435.00-000-0036.
References	**Document ID** CNC-1435.00-00-0036 Rev. 3 [Attachment 4] - Evaluations of Changes/Deviations to the Fire Protection Program CNC-1435.00-00-0051 Rev. 0 - NFPA 10 Code Conformance Review for NFPA 805 Transition		
3.8 Fire Alarm and Detection Systems.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.8.1 Fire Alarm	3.8.1 Fire Alarm. Alarm initiating devices shall be installed in accordance with NFPA 72, National Fire Alarm Code®. Alarm annunciation shall allow the proprietary alarm system to transmit fire-related alarms, supervisory signals, and trouble signals to the control room or other constantly attended location from which required notifications and response can be initiated. Personnel assigned to the proprietary alarm station shall be permitted to have other duties. The following fire-related signals shall be transmitted: (1) Actuation of any fire detection device (2) Actuation of any fixed fire suppression system (3) Actuation of any manual fire alarm station (4) Starting of any fire pump (5) Actuation of any fire protection supervisory device (6) Indication of alarm system trouble condition	Complies with Use of EEEE	The fire alarm and signaling system was evaluated in accordance with NFPA 72D, 1975 edition and meet the associated requirements. Signals (alarm, trouble) for detection devices, suppression system actuation, supervisory devices, and fire pump start annunicaite to a separate panel in the control room. There are no manual fire alarm stations in the power block.
References	**Document ID** CNC-1435.00-00-0059 Rev. 0 - NFPA 72 Code Conformance Review for NFPA 805 Transition		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.8.1 Fire Alarm (1)	3.8.1 (1) Actuation of any fire detection device		
3.8.1 Fire Alarm (2)	3.8.1 (2) Actuation of any fixed fire suppression system		
3.8.1 Fire Alarm (3)	3.8.1 (3) Actuation of any manual fire alarm station		
3.8.1 Fire Alarm (4)	3.8.1 (4) Starting of any fire pump		
3.8.1 Fire Alarm (5)	3.8.1 (5) Actuation of any fire protection supervisory device		
3.8.1 Fire Alarm (6)	3.8.1 (6) Indication of alarm system trouble condition		
3.8.1.1 [Fire Alarm Communication Requirements]	3.8.1.1 Means shall be provided to allow a person observing a fire at any location in the plant to quickly and reliably communicate to the control room or other suitable constantly attended location.	Comply	Means to report a fire are provided including telephone and radio communication.
References	**Document ID** Duke PAT Rev. 08/01/2012 [Page 67] - Duke Energy Plant Access Training		
3.8.1.2 [Fire Alarm Prompt Notification Limits]	3.8.1.2 Means shall be provided to promptly notify the following of any fire emergency in such a way as to allow them to determine an appropriate course of action:	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.8.1.2 [Fire Alarm Prompt Notification Limits] (1)	3.8.1.2 (1) General site population in all occupied areas	Comply	Means are provided to notify the general site population via the PA system.
References	**Document ID** Duke PAT Rev. 08/01/2012 [Page 69] - Duke Energy Plant Access Training RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.8.1.2 [Fire Alarm Prompt Notification Limits] (2)	3.8.1.2 (2) Members of the industrial fire brigade and other groups supporting fire emergency response	Comply	Means are provided to notify the industrial fire brigade and other supporting groups via the PA systems and pagers.
References	**Document ID** RP/0/B/5000/029 Rev. 27 - Fire Brigade Response		
3.8.1.2 [Fire Alarm Prompt Notification Limits] (3)	3.8.1.2 (3) Off-site fire emergency response agencies. Two independent means shall be available (e.g., telephone and radio) for notification of off-site emergency services	Comply	Means are provided to notify the offsite fire departments for assistance via phone (land line , selective signal, or satellite).
References	**Document ID** Catawba Emergency Plan - RP/0/A/5000/006 A Rev. 26 [Enclosure 4.2] - Notifications to State and Counties from the Control Room		

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
	RP/0/B/5000/029 Rev. 27 [Enclosure 3.4] - Fire Brigade Response		
3.8.2 Detection.	3.8.2 Detection. If automatic fire detection is required to meet the performance or deterministic requirements of Chapter 4, then these devices shall be installed in accordance with NFPA 72, National Fire Alarm Code, and its applicable appendixes.	Complies with Use of EEEE	The fire alarm and signaling system was evaluated in accordance with NFPA 72E, 1974 edition and meet the associated requirements. See LAR Table 4-3 for required detection systems.
References	**Document ID**		
	CNC-1435.00-00-0059 Rev. 0 - NFPA 72 Code Conformance Review for NFPA 805 Transition		
3.9 Automatic and Manual Water-Based Fire Suppression Systems.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.9.1 [Fire Suppression System Code Requirements]	3.9.1* If an automatic or manual water-based fire suppression system is required to meet the performance or deterministic requirements of Chapter 4, then the system shall be installed in accordance with the appropriate NFPA standards including the following:	N/A	See subsections for compliance.
3.9.1 [Fire Suppression System Code Requirements] (1)	3.9.1 (1) NFPA 13, Standard for the Installation of Sprinkler Systems	Comply	CNS is protected by automatic wet pipe sprinkler systems and preaction systems. These systems are installed in accordance with NFPA 13. See LAR Table 4-3 for required suppression systems.
References	**Document ID**		
	CNS FP ESD Rev. 1/12/12 - CNS Fire Protection Program Engineering Support Document		
	CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
	CNS-1599.RF-00-0001 Rev. 20 - Design Basis Specification for the Fire Protection System (RF/RY)		
3.9.1 [Fire Suppression System Code Requirements] (2)	3.9.1 (2) NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection	Comply	CNS is protected by water spray (deluge) systems. These systems are installed in accordance with NFPA 15. See LAR Table 4-3 for required suppression systems.
References	**Document ID**		
	CNS FP ESD Rev. 1/12/12 - CNS Fire Protection Program Engineering Support Document		
	CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
	CNS-1599.RF-00-0001 Rev. 20 - Design Basis Specification for the Fire Protection System (RF/RY)		
3.9.1 [Fire Suppression System Code Requirements] (3)	3.9.1 (3) NFPA 750, Standard on Water Mist Fire Protection Systems	N/A	CNS does not use water mist suppresion systems.
3.9.1 [Fire Suppression System Code Requirements] (4)	3.9.1 (4) NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems	N/A	CNS does not use foam-water suppresion systems.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.9.2 [Fire Suppression System Flow Alarm]	3.9.2 Each system shall be equipped with a water flow alarm.	Complies	Automatic water-based suppression systems are provided with a water flow alarm.
References	**Document ID** CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.2.1] - Design Basis Specification for the Fire Protection System (RF/RY)		
		Submit for NRC Approval	The manual water-based suppression systems do not have water flow alarms. See Attachment L of the License Amendment Request for further details on the request for NRC approval for lack of water flow alarms on the manual water-based suppression systems.
3.9.3 [Fire Suppression System Alarm Locations]	3.9.3 All alarms from fire suppression systems shall annunciate in the control room or other suitable constantly attended location.	Comply	Fire suppression systems that are equipped with alamrs annunciate in the Control Room.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 - Design Basis Specification for the Fire Protection System (RF/RY)		
3.9.4 [Fire Suppression System Diesel Pump Sprinkler Protection]	3.9.4 Diesel-driven fire pumps shall be protected by automatic sprinklers.	N/A	CNS does not utilize diesel driven fire water pumps.
References	**Document ID** CNC-1435.00-00-0055 Rev. 0 - NFPA 20 Code Conformance Review for NFPA 805 Transition		
3.9.5 [Fire Suppression System Shutoff Controls]	3.9.5 Each system shall be equipped with an OS&Y gate valve or other approved shutoff valve.	Complies with previous NRC Approval	With respect to valves that are not specifically UL Listed or FM Approved, the 1983 SER states: Several isolation, vent, check, or drain RF (interior fire protection system) valves located within nuclear safety-related areas, particularly within the reactor buildings, are not UL listed or Factory Mutual (FM) approved. Of the 38 RF valves located within each reactor building, 14 valves are not UL listed. These unlisted valves are constructed of stainless steel or carbon steel bodies. The sprinkler isolation valve and hose connection supply piping for each unit's auxiliary feedwater pump room also are unlisted. These valves are seismically qualifed and were utilized so that piping within these areas could be seismically designed and a pressure boundary maintained. The four RF valves (three motor operated, one vent) located within the auxiliary building for the three RF supply pipes to the reactor building also are unlisted. These valves required seismic qualification to maintain the reactor pressure boundary. Suitable seismically qualified UL-listed valves were not available. The two auxiliary building RY (exterior fire protection) supply lines from the

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
			underground loop are each provided with an electric motor-operated valve. These valves are seismically designed and, therefore, unlisted. All valves mentioned are designed to specifications outlined in ANSI/ASTM B31.1. The staff concludes that these valves will provide the same level of protection as the UL-listed valves and is, therefore, an acceptable deviation from Item C.6.c(1) of BTP CMEB 9.5-1. There have been no changes that invalidate the basis for this approval.
References	**Document ID** 1983-02-01 NRC Safety Evaluation Report [Section 9.5.1.7] - NRC Safety Evaluation Report		
		Comply	Hose stations and sprinkler systems are equipped with approved shutoff valves except where approved by the NRC.
References	**Document ID** CN-1599 Catawba Nuclear Station Drawing Series - Flow Diagram of Fire Protection System (RF) CN-2599 Catawba Nuclear Station Drawing Series - Flow Diagram of Fire Protection System (RF)		
3.9.6 [Fire Suppression System Valve Supervision]	3.9.6 All valves controlling water-based fire suppression systems required to meet the performance or deterministic requirements of Chapter 4 shall be supervised as described in 3.5.14.	Comply	Valves are either electrically supervised or they are locked/sealed in place in accordance with Section 3.5.14.
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.c.2] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 3.3.2] - Design Basis Specification for the Fire Protection System (RF/RY) PT/1/A/4400/001K Rev. 31 - Fire Suppression System Valve Operability Check PT/1/A/4400/001M Rev. 16 - Unit 1 Fire Suppression System Containment Valve Operability PT/2/A/4400/001K Rev. 13 - Fire Suppression System Valve Operability Check PT/2/A/4400/001M Rev. 8 - Unit 2 Fire Suppression System Containment Valve Operability		
3.10 Gaseous Fire Suppression Systems.	N/A	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.
3.10.1 [Gaseous Suppression System Code Requirements]	3.10.1 If an automatic total flooding and local application gaseous fire suppression system is required to meet the performance or deterministic requirements of Chapter 4, then the system shall be designed and installed in accordance with the following applicable NFPA codes:	N/A	See subsections for compliance.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.10.1 [Gaseous Suppression System Code Requirements] (1)	3.10.1 (1) NFPA 12, Standard on Carbon Dioxide Extinguishing Systems	Complies with Use of EEEE	Each of the Turbine Driven Auxiliary Feedwater Pumps (two systems), Motor Drive Auxiliary Feedwater Pumps (two systems), and the Diesel Generators (two systems) are protected by carbon dioxide extinguishing systems. The carbon dioxide extinguishing systems have been evaluated in accordance with NFPA 12, 1980 edition.
References	**Document ID**		
	CNC-1435.00-00-0052 Rev. 1 - NFPA 12, Low Pressure Carbon Dioxide System, Code Conformance Review for NFPA 805 Transition		
	CNC-1435.00-00-0053 Rev. 1 - NFPA 12, High Pressure Carbon Dioxide System, Code Conformance Review for NFPA 805 Transition		
3.10.1 [Gaseous Suppression System Code Requirements] (2)	3.10.1 (2) NFPA 12A, Standard on Halon 1301 Fire Extinguishing Systems	N/A	CNS does not use Halon extinguishing systems to meet Chapter 4 requirements.
3.10.1 [Gaseous Suppression System Code Requirements] (3)	3.10.1 (3) NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems	N/A	CNS does not use clean agent extinguishing systems.
3.10.2 [Gaseous Suppression System Alarm Location]	3.10.2 Operation of gaseous fire suppression systems shall annunciate and alarm in the control room or other constantly attended location identified.	Comply	The CNS carbon dioxide system actuation is alarmed locally and in the Control Room.
References	**Document ID**		
	CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.1.2, 3.2.1.3] - Design Basis Specification for the Fire Protection System (RF/RY)		
3.10.3 [Gaseous Suppression System Ventilation Limitations]	3.10.3 Ventilation system design shall take into account prevention from over-pressurization during agent injection, adequate sealing to prevent loss of agent, and confinement of radioactive contaminants.	Comply	The design of the carbon dioxide systems takes into account the prevention of over pressurization, adequate sealing to prevent loss of agent, and the confinement of radioactive contaminants. The areas with carbon dioxide suppression systems have adequate venting in the event of overpressurization. The areas are well sealed with excess carbon dioxide calculate for leakage. There are no radiological concerns in the Diesel Generator Buildings. The Auxiliary Feedwater Pumps Rooms are located within the Auxiliary Building where contaminants would be contained.
References	**Document ID**		
	CNC-1435.00-00-0052 Rev. 1 - NFPA 12, Low Pressure Carbon Dioxide System, Code Conformance Review for NFPA 805 Transition		
	CNC-1435.00-00-0053 Rev. 1 - NFPA 12, High Pressure Carbon Dioxide System, Code Conformance Review for NFPA 805 Transition		
	CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
3.10.4 [Gaseous Suppression System Single Failure Limits]	3.10.4* In any area required to be protected by both primary and backup gaseous fire suppression systems, a single active failure or a crack in any pipe in the fire suppression system shall not impair both the primary and backup fire suppression capability.	N/A	Primary gaseous fire suppression systems are not provided with backup gaseous suppression systems at CNS. Fire hose stations are available as a backup fire suppression feature.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.e] - Design Basis Specification for the Plant Fire Protection		
3.10.5 [Gaseous Suppression System Disarming Controls]	3.10.5 Provisions for locally disarming automatic gaseous suppression systems shall be secured and under strict administrative control.	Comply	Station Documentation provides provisions for disarming the carbon dioxide systems when performing maintenance or inspection work.
References	**Document ID** NSD-316 Rev. 13 - Fire Protection Impairment and Surveillance PT/1/A/4450/010A Rev. 49 - Unit 1 D/G CO2 System Test (18 Months) PT/1/A/4450/013A Rev. 44 - Unit 1 Aux FDWP CO2 System Test (18 Month) PT/2/A/4450/010A Rev. 29 - Unit 2 D/G CO2 System Test (18 Months) PT/2/A/4450/013A Rev. 32 - Unit 2 Aux FDWP CO2 System Test (18 Month) SOMP 02-01 Rev. 16 - Safety Tagging and Configuration Control		
3.10.6 [Gaseous Suppression System CO2 Limitations]	3.10.6* Total flooding carbon dioxide systems shall not be used in normally occupied areas.	Comply	Total flooding carbon dioxide systems are utilized in the Turbine Driven Auxiliary Feedwater Pump Pits and in the Diesel Generator Rooms which are not normally occupied.
References	**Document ID** Catawba Nuclear Station Site Fire Strategies - CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
3.10.7 [Gaseous Suppression System CO2 Warnings]	3.10.7 Automatic total flooding carbon dioxide systems shall be equipped with an audible pre-discharge alarm and discharge delay sufficient to permit egress of personnel. The carbon dioxide system shall be provided with an odorizer.	Comply	Carbon dioxide extinguishing systems are provided with a pre-discharge alarm and discharge delay to permit egress of personnel. Odorizors are provided.
References	**Document ID** CN-1599-04.00 Rev. 8 - Flow Diagram of Interior Fire Protection System (RF) CN-1599-04.02 - Flow Diagram of Interior Fire Protection System (RF) CN-2599-04.00 Rev. 8 - Flow Diagram of Interior Fire Protection System (RF) CN-2599-04.02 Rev. 4 - Flow Diagram of Interior Fire Protection System (RF) CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.2] - Design Basis Specification for the Plant Fire Protection CNS-1599.RF-00-0001 Rev. 20 [Section 3.2.1.2, 3.2.1.3] - Design Basis Specification for the Fire Protection System (RF/RY) PT/1/A/4450/010A Rev. 49 - Unit 1 D/G CO2 System Test (18 Months) PT/1/A/4450/013A Rev. 44 - Unit 1 Aux FDWP CO2 System Test (18 Month) PT/2/A/4450/010A Rev. 29 - Unit 2 D/G CO2 System Test (18 Months)		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
	PT/2/A/4450/013A Rev. 32 - Unit 2 Aux FDWP CO2 System Test (18 Month)		
3.10.8 [Gaseous Suppression System CO2 Required Disarming]	3.10.8 Positive mechanical means shall be provided to lock out total flooding carbon dioxide systems during work in the protected space.	Comply	Positive mechanical means are provided to prevent the discharge of carbon dioxide during work in the protected areas.
References	**Document ID**		
	CN-1599-04.02 - Flow Diagram of Interior Fire Protection System (RF)		
	CN-2599-04.00 Rev. 8 - Flow Diagram of Interior Fire Protection System (RF)		
	PT/1/A/4450/010A Rev. 49 - Unit 1 D/G CO2 System Test (18 Months)		
	PT/1/A/4450/013A Rev. 44 - Unit 1 Aux FDWP CO2 System Test (18 Month)		
	PT/2/A/4450/010A Rev. 29 - Unit 2 D/G CO2 System Test (18 Months)		
	PT/2/A/4450/013A Rev. 32 - Unit 2 Aux FDWP CO2 System Test (18 Month)		
3.10.9 [Gaseous Suppression System Cooling Considerations]	3.10.9 The possibility of secondary thermal shock (cooling) damage shall be considered during the design of any gaseous fire suppression system, but particularly with carbon dioxide.	Comply	Equipment located in areas protected by carbon dioxide systems have been designed to account for thermal cooling upon contact with the gas.
References	**Document ID**		
	CNS-1465.00-00-0006 Rev. 22 [App. A.1, Section 5.e] - Design Basis Specification for the Plant Fire Protection		
3.10.10 [Gaseous Suppression System Decomposition Issues]	3.10.10 Particular attention shall be given to corrosive characteristics of agent decomposition products on safety systems.	Comply	Carbon Dioxide is a noncorrosive extinguishing agent.
References	**Document ID**		
	Fire Protection Handbook, Chapter 3, Section 11 - Carbon Dioxide and Application Systems		
3.11 Passive Fire Protection Features	3.11 Passive Fire Protection Features. This section shall be used to determine the design and installation requirements for passive protection features. Passive fire protection features include wall, ceiling, and floor assemblies, fire doors, fire dampers, and through fire barrier penetration seals. Passive fire protection features also include electrical raceway fire barrier systems (ERFBS) that are provided to protect cables and electrical components and equipment from the effects of fire.	N/A	N/A - Section Heading, see sub-sections for any specific compliance statements.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.11.1 Building Separation.	3.11.1 Building Separation. Each major building within the power block shall be separated from the others by barriers having a designated fire resistance rating of 3 hours or by open space of at least 50 ft (15.2 m) or space that meets the requirements of NFPA 80A, Recommended Practice for Protection of Buildings from Exterior Fire Exposures. Exception: Where a performance-based analysis determines the adequacy of building separation, the requirements of 3.11.1 shall not apply.	Comply	Buildings in the power block are adequately separated. There are nine main buildings in the power block; the two Turbine Buildings, the Auxiliary Building, the Service Building, the two Diesel Generator Buildings, and the two Reactor Buildings and the Nuclear Service Water Pump Structure. These buildings are separated by a combination of spatial separation and qualified three-hour rated fire barriers.
References	**Document ID**		
	CN-1209 Catawba Nuclear Station Drawing Series - Fire Protection Equipment		
	CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
3.11.2 Fire Barriers.	3.11.2 Fire Barriers. Fire barriers required by Chapter 4 shall include a specific fire-resistance rating. Fire barriers shall be designed and installed to meet the specific fire resistance rating using assemblies qualified by fire tests. The qualification fire tests shall be in accordance with NFPA 251, Standard Methods of Tests of Fire Endurance of Building Construction and Materials, or ASTM E 119, Standard Test Methods for Fire Tests of Building Construction and Materials.	Complies	Each fire area is provided with a rated fire barrier that has a specific fire-resistance rating unless otherwise evaluated as equivalent or approved by the NRC. Fire barriers are generally three-hour rated construction.
References	**Document ID**		
	CN-1105 Drawing Series - Architectural Fire Boundary Walls		
	CN-1209-10 Drawing Series - Fire Protection Equipment Layout and Boundary		
	CNS-1465.00-00-0006 Rev. 22 - Design Basis Specification for the Plant Fire Protection		
		Complies with previous NRC Approval	The NRC approved two unique fire barrier configurations. The first is the unprotected steel supporting the ceiling slabs of the Turbine Driven Auxliary Feedwater Pump pits and the second is the Reactor Building Access portals. The 7/1/1984 SER Supplement 3 states, "The 17' x17' cover of each turbine driven auxiliary feedwater pump pit is made up of seven removable 12" thick concrete slab sections and RTV silicone foam. These covers are supported by W16 x 64 horizontal structural steel members. No fire resistive coating has been applied to this steel based on the minimal in situ and potential transient combustible loading. Combustible materials consist of armor interlock cable, grease, sealite conduit, and lubricating oil. Because of the limited quantity and distribution of these materials, an uncontrolled fire could not be expected to develop sufficient duration and temperature to threaten the heavy steel members. A high pressure carbon dioxide system protects each pit providing additional assurance of barrier integrity. Photoelectric type smoke detectors are also installed in each pit providing early warning to the Control Room through the EFA system.

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
			Therefore, the staff has concluded that the absence of a fire resistive coating on the structural members is an acceptable deviation from Section C.5.a of BTP CMEB 9.5-1." The 7/1/1984 SER Supplement 3 states, "The staff evaluated the adequacy of interior walls and floor/ceiling assemblies which define fire area boundaries. During the site audit, the staff observed that the fire area boundary of the Reactor Building includes two personnel access portals of a design which is not specifically fire rated. The upper portal is enclosed with concrete walls, floor and ceiling. The lower portal is enclosed with a concrete ceiling and floor. The walls of the enclosure are constructed of minimum 3/16-inch steel plate sandwiching 8 inches of a fire rated silicone foam supported by steel channels and wide flange members. Combustible materials on either side of the portal consist primarily of armored cable, which will not significantly contribute to a fire if one should occur. Fire detection systems are provided in these areas as well. Therefore, the staff has concluded that a fire will be detected in its initial stages, before a significant temperature rise can occur. Such a fire would be well within the capability of the plant fire brigade to extinguish using manual fire fighting equipment. During the time delay between fire detection and the arrival of the brigade, the hot gases generated would rise to the ceiling, away from the portals. The ceiling area would thus act as a heat sink, preventing the portals from being significantly damaged pending fire extinguishment. Therefore, the staff has concluded that on the basis of (1) the limited fire hazard, (2) the available protection and (3) the construction of the portals, the staff has reasonable assurance that the enclosure will prevent fire and smoke propagation from one side to another." There have been no changes that invalidate the basis for these approvals.
References	**Document ID** 1984-07-01 NRC Safety Evaluation Report [Section 9.5.1.5 and 9.5.1.8] - Supplement 3		
		Complies with Use of EEEE	Separation between specific fire areas has been evaluated in attachments to the referenced calculation.
References	**Document ID** CNC-1435.00-00-0035 Rev. 8 - CNS Penetration Seal Database and 86-10 Evaluation CNC-1435.00-00-0036 Rev. 3 - Evaluations of Changes/Deviations to the Fire Protection Program		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.11.3 Fire Barrier Penetrations.	3.11.3* Fire Barrier Penetrations. Penetrations in fire barriers shall be provided with listed fire-rated door assemblies or listed rated fire dampers having a fire resistance rating consistent with the designated fire resistance rating of the barrier as determined by the performance requirements established by Chapter 4. (See 3.11.3.4 for penetration seals for through penetration fire stops.) Passive fire protection devices such as doors and dampers shall conform with the following NFPA standards, as applicable: (see subsections) Exception: Where fire area boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, a performance-based analysis shall be required to assess the adequacy of fire barrier forming the fire boundary to determine if the barrier will withstand the fire effects of the hazards in the area. Openings in fire barriers shall be permitted to be protected by other means as acceptable to the AHJ.		
3.11.3 Fire Barrier Penetrations. (1)	3.11.3* (1) NFPA 80, Standard for Fire Doors and Fire Windows	Complies with previous NRC Approval	Some doors at CNS are un-labeled and modified in order to satisfy field requirements. The 1983 SER evaluated these configurations and states the following: "Door openings in fire-rated barriers are, for the most part, equipped with labeled fire doors. By letters dated July 29 and December 15, 1982, the applicant identified number of door openings that were provided with unlabeled doors. Non-fire-rated, hollow metal doors are located in the operator's room and interface office (Fire Area 35). Several hollow metal doors with louvered grills for radiological purposes are located in the station. The fire load on both sides of these doors is low. The doors are of substantial metal construction. Therefore, they will be able to prevent the spread of fire until the fire is extinguished by the station fire brigade. Pressure doors as well as bullet- and missile-resistant doors are located in some fire boundaries. These doors have been fabricated in accordance with Underwriters Laboratories (UL) approved procedures for 3-hour-fire-rated doors. Certificates from the manufacturers are on file that verify the construction of the doors. They are not labeled because modifications necessary to satisfy leakage rates, bullet resistance, and pressure loadings are not incorporated in UL procedures. However, it is the staff's opinion that these doors will provide an equivalent level of fire protection to labeled fire doors. The staff finds use of unlabeled fire doors in the above referenced areas to be an acceptable deviation from Item C.5.a(5) of BTP CMEB 9.5-1." There have been no changes that invalidate the basis for this approval.
References	**Document ID** 1983-02-01 NRC Safety Evaluation Report [Section 9.5.1.5] - NRC Safety Evaluation Report		
		Complies with Use of EEEE	Fire doors have been evaluated in accordance with NFPA 80, 2007 edition and other engineering evaluations as referenced below.

Attachment A
NEI 04-02 Table B-1 Transition of Fundamental Fire Protection Program & Design Elements

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
References	**Document ID** CNC-1435.00-00-0036 Rev. 3 [Attachment 12] - Evaluations of Changes/Deviations to the Fire Protection Program CNC-1435.00-00-0060 Rev. 0 - NFPA 80 Code Conformance Review for NFPA 805 Transition		
3.11.3 Fire Barrier Penetrations. (2)	3.11.3* (2) NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems	Complies with Use of EEEE	Fire dampers have been evaluated in accordance with NFPA 90A, 1981 edition.
References	**Document ID** CNC-1435.00-00-0061 Rev. 0 - NFPA 90A Code Conformance Review for NFPA 805 Transition		
3.11.3 Fire Barrier Penetrations. (3)	3.11.3* (3) NFPA 101, Life Safety Code	Complies with Clarification	NFPA 101, Section 8.2.3.2.1(a) with regards to rated fire door assemblies refers to NFPA 80. NFPA 101, Section 9.2.1. with regards to rated fire dampers refers to NFPA 90A. Therefore compliance with NFPA 101 is achieves compliance with NFPA 101 via the NFPA 80 and 90A code conformance reviews.
3.11.4 Through Penetration Fire Stops.	3.11.4* Through Penetration Fire Stops. Through penetration fire stops for penetrations such as pipes, conduits, bus ducts, cables, wires, pneumatic tubes and ducts, and similar building service equipment that pass through fire barriers shall be protected as follows.		
3.11.4 Through Penetration Fire Stops. (a)	3.11.4* (a) The annular space between the penetrating item and the through opening in the fire barrier shall be filled with a qualified fire-resistive penetration seal assembly capable of maintaining the fire resistance of the fire barrier. The assembly shall be qualified by tests in accordance with a fire test protocol acceptable to the AHJ or be protected by a listed fire-rated device for the specified fire-resistive period.	Complies with Previous NRC Approval	The NRC approved two unique fire barrier penetraton configurations. The first is unique HVAC penetration sealing mechanisms and the second is the Reactor Building penetrations. The 7/1/1984 SER Supplement 3 states, "In some fire rated walls and floor/ceiling assemblies, openings were provided for HVAC duct access which are larger than the ducts themselves. To support fire damper sleeves in these openings, minimum ½ inch by 7-inch steel plate was used to form a rigid frame. To provide a degree of fire resistance to the frame to assure that the assembly will not collapse under a fire exposure, a minimum thickness of 1 1/2 inches of a U.L. listed catalyzed magnesium oxychloride fireproofing was applied. The remainder of the opening was protected by a fire rated silicone foam. While this composite design of fire proofing and foam sealant has not been tested by an independent laboratory, they have successfully passed the acceptance criteria of ASTM E-119 individually as documented in the U.L. Building Materials Directory, 1983. Based on these tests, and the staff's independent evaluation of the proposed design, the staff concludes that it provides reasonable assurance that under an anticipated fire exposure the integrity of the barrier will not be affected. Therefore, the staff has concluded that the design represents an acceptable deviation from Section C.5.a of BTP CMEB 9.5-1 The 7/1/1984 SER Supplement 3 states, "To facilitate penetrations of instrumentation tubing and process piping through the 3-foot-thick concrete shield wall of the Reactor Building, at least 143, 3/8-inch wall

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
			thickness, metal sleeves are installed per unit. These sleeves range in size from 12 inches to 72 inches in diameter. Spare sleeves and those used for penetrations of instrumentation tubing are sealed by welding a Schedule 100 pipe cap to the annulus side of each sleeve opening. By letter dated April 9, 1984, the applicant committed to install a 3-hour fire rated sealant material in each of these sleeves to prevent fire propagation through the penetration. The staff finds this acceptable. Process piping penetrating the shell wall ranges in size from 1 inch to 34 inches in diameter. Each of these pipes incorporates a guarded sleeve mechanical assembly designed to maintain the integrity of the Reactor Building pressure boundary. These sleeve designs are typical of those utilized where the Reactor Building includes an annulus area. The staff has evaluated the fire hazards on either side of the shell wall and, based on the large mass of each sleeve, the thickness of the penetrated wall and large embedded surface area of each sleeve, the staff concludes that fire propagation through the penetration will not occur. To facilitate penetration of cables through the shell wall of the Reactor Building, approximately 100 9-inch x 20-inch metal sleeved openings are provided per unit. To prevent fire propagation through the openings and to withstand the effects of the annulus ventilation system during leak rate testing, the applicant proposes to use a fire rated silicone foam, cured with a different catalyst, which results in a foam of greater density than that used in other fire barrier penetrations. Based on the staff's evaluation of the fire hazards on either side of the penetration and the proven ability of the lower density foam to withstand the effects of a fire, the staff concluded that the denser formula provides an equivalent level of safety and is, therefore, acceptable." There have been no changes that invalidate the basis for these approvals.
References	**Document ID** 1984-07-01 NRC Safety Evaluation Report [Section 9.5.1.5] - Supplement 3		
		Complies with Use of EEEE	CNS penetration seals comply with the typical details except where identified in CNC-1435.03-00-0035, "CNS Penetration Seal Database and 86-10 Evaluations." This document analyzes non-conforming fire barrier penetration seals.
References	**Document ID** CNC-1435.00-00-0035 Rev. 8 - CNS Penetration Seal Database and 86-10 Evaluation		
		Comply	CNS penetration seals comply with typical details as documented in CNS-1435.00-00-0003, "Design Specification for Mechanical and Electrical Penetration Fire, Flood, and Pressure Seals" unless otherwise evaluated as equivalent or approved by the NRC.
References	**Document ID** CNS-1435.00-00-0003 Rev. 5 - Design Specification for Mechanical and Electrical Penetration Fire, Flood, and Pressure Seals		

NFPA 805 Ch. 3 Reference	Requirements / Guidance	Compliance Statement	Compliance Basis
3.11.4 Through Penetration Fire Stops. (b)	3.11.4* (b) Conduits shall be provided with an internal fire seal that has an equivalent fire-resistive rating to that of the fire barrier through opening fire stop and shall be permitted to be installed on either side of the barrier in a location that is as close to the barrier as possible. Exception: Openings inside conduit 4 in. (10.2 cm) or less in diameter shall be sealed at the fire barrier with a fire-rated internal seal unless the conduit extends greater than 5 ft (1.5 m) on each side of the fire barrier. In this case the conduit opening shall be provided with noncombustible material to prevent the passage of smoke and hot gases. The fill depth of the material packed to a depth of 2 in. (5.1 cm) shall constitute an acceptable smoke and hot gas seal in this application.	Comply	CNS internal conduit seals comply with the exception to this section.
References	**Document ID** CNS-1435.00-00-0003 Rev. 5 [Section 13.5] - Design Specification for Mechanical and Electrical Penetration Fire, Flood, and Pressure Seals		
3.11.5 Electrical Raceway Fire Barrier Systems (ERFBS).	3.11.5* Electrical Raceway Fire Barrier Systems (ERFBS). ERFBS required by Chapter 4 shall be capable of resisting the fire effects of the hazards in the area. ERFBS shall be tested in accordance with and shall meet the acceptance criteria of NRC Generic Letter 86-10, Supplement 1, "Fire Endurance Test Acceptance Criteria for Fire Barrier Systems Used to Separate Safe Shutdown Trains Within the Same Fire Area." The ERFBS needs to adequately address the design requirements and limitations of supports and intervening items and their impact on the fire barrier system rating. The fire barrier system's ability to maintain the required nuclear safety circuits free of fire damage for a specific thermal exposure, barrier design, raceway size and type, cable size, fill, and type shall be demonstrated. Exception No. 1: When the temperatures inside the fire barrier system exceed the maximum temperature allowed by the acceptance criteria of Generic Letter 86-10, "Fire Endurance Acceptance Test Criteria for Fire Barrier Systems Used to Separate Redundant Safe Shutdown Training Within the Same Fire Area," Supplement 1, functionality of the cable at these elevated temperatures shall be demonstrated. Qualification demonstration of these cables shall be performed in accordance with the electrical testing requirements of Generic Letter 86-10, Supplement 1, Attachment 1, "Attachment Methods for Demonstrating Functionality of Cables Protected by Raceway Fire Barrier Systems During and After Fire Endurance Test Exposure." Exception No. 2: ERFBS systems employed prior to the issuance of Generic Letter 86-10, Supplement 1, are acceptable providing that the system successfully met the limiting end point temperature requirements as specified by the AHJ at the time of acceptance.	N/A	CNS does not utilize any Electrical Raceway Fire Barrier Systems for Chapter 4 compliance.

S. Modifications and Implementation Items

11 Pages Attached

Tables S-1, Plant Modifications Completed, S-2a, Plant Modifications Committed – Internal Events PRA, and S-2b, Plant Modifications Committed – Fire PRA, provided below, include a description of the modifications along with the following information:

- A problem statement,
- Risk ranking of the modification,
- An indication if the modification is currently included in the Fire PRA,
- Compensatory Measure in place, and
- A risk-informed characterization of the modification and compensatory measure.

Table S-1 Plant Modifications Completed

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
01	High	1, 2	The current installation and maintenance program of the turbine building siding fasteners leave the siding susceptible to being affected by low speed (73-114 mph) straight line winds thus increasing the PRA risk probability of a LOOP event.	Replace/upgrade turbine building siding fasteners and institute a preventative maintenance program to periodically inspect the fasteners.	Y	N	This modification will provide an internal events high winds risk reduction to offset the Fire PRA risk increase post-transition.
02	High	2	KSI Inverter Modification to relocate cable in fire area 9.	Cable 2KSI-SKXP for 0ETLPLSKXP will be re-routed from SSF shutdown fire area 9 (Unit 2 Battery Room) to non-SSF shutdown fire area(s).	N	Y	This cable modification is required for NFPA 805. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.

Table S-1 Plant Modifications Completed

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
03	Med	1	Unit 1 Breaker Coordination issues identified for MCCs 1EMXA, 1EMXB, 1EMXC, 1EMXD, 1EMXI, 1EMXJ, 1EMXK, and 1EMXL.	Remove the incoming breaker and connect wiring directly to the MCC bus for the following MCCs: 1EMXA, 1EMXB, 1EMXC, 1EMXD, 1EMXI, 1EMXJ, 1EMXK, and 1EMXL.	Y	Y	This coordination modification is required for NFPA 805. The current coordination study is valid for current licensing basis. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.
04	Med	2	Unit 2 Breaker Coordination issues identified for MCCs 2EMXA, 2EMXB, 2EMXC, 2EMXD, 2EMXI, 2EMXJ, 2EMXK, and 2EMXL.	Remove the incoming breaker and connect wiring directly to the MCC bus for the following MCCs: 2EMXA, 2EMXB, 2EMXC, 2EMXD, 2EMXI, 2EMXJ, 2EMXK, and 2EMXL.	Y	Y	This coordination modification is required for NFPA 805. The current coordination study is valid for current licensing basis. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.
05	Med	1, 2	Breaker Coordination issues identified on load side of EDE and EDF breakers.	Install fuses on the load side of EDE and EDF breakers. Involves 4 breakers on EDE and 3 on EDF. Mount new fuses in each panel.	Y	Y	This coordination modification is required for NFPA 805. The current coordination study is valid for current licensing basis. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.

Table S-1 Plant Modifications Completed

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
06	Med	1, 2	Spurious valve operation with Breaker Coordination issues identified with 600 VAC MCCs.	Remove the fuse from the Motor Operator Heater circuit for 1CA VA0050A and 2CAVA0050A.	Y	Y	This spurious operation modification is required for NFPA 805. The current deterministic analysis is valid for current licensing basis. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.
07	Med	1, 2	Spurious valve operation with Breaker Coordination issues identified with 600 VAC MCCs.	Route new cables for the normally energized circuits on 1WLLS5900 and 2WLLS5900.	Y	Y	This spurious operation modification is required for NFPA 805. The current deterministic analysis is valid for current licensing basis. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.

Table S-1 Plant Modifications Completed

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
08	Med	1, 2	TDCAP is susceptible to fire in the ETA/ETB Switchgear Rooms.	Cable routes modified such that the TDCAP will remain available in the event of a fire in the ETA or ETB Switchgear Room.	Y	Y	This modification is required for NFPA 805. The modification will ensure that the TDCAP is available in addition to the already credited opposite train motor driven CA pump for a fire in the ETA or ETB Switchgear Rooms. Compensatory measures will be established when the NFPA 805 fire protection program becomes effective and remain in place until this modification is complete.

Table S-2a Plant Modifications Committed – Internal Events PRA

Item	Rank	Unit	Problem Statement	Proposed Modification	In IEPRA	Comp Measure	Risk Informed Characterization
01	High	1, 2	Auxiliary Shutdown Panels A and B are located in the CA (Aux. Feed water) Pump room and are theoretically susceptible to being rendered non-functional by an internal flood from a pipe break at a higher elevation within the Auxiliary Building.	Isolation of fire protection piping in the 560' and 577' elevation electrical penetration rooms. Completion Date: December 31, 2017	Y	N	This modification will provide an internal flood risk reduction to offset the Fire PRA risk increase post-transition.
02			Deleted via Letter CNS-15-101.				
				Item 03 originally in Table S-2a has been completed and is shown on Table S-1, Item 01.			

Table S-2b Plant Modifications Committed – Fire PRA

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
				All items originally in Table S-2b have been completed and are shown on Table S-1, Items 02 through 08.			

Table S-3, Items provided below are those items (procedure changes, process updates, and training to affected plant personnel) that will be completed prior to the implementation of new NFPA 805 fire protection program. This will occur within 180 days after issuance of the license amendment unless that date falls within a scheduled refueling outage. Then, implementation will occur within 60 days after startup from that scheduled refueling outage. Note Item 13 is associated with modifications and will be completed 180 days after completion of the last risk related modification.

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
1	1, 2	Perform the following recommendations from the Radiological Release Evaluation: 1. Within each yard area fire strategy, identify radiologically controlled area boundaries within the strategy and any potential escape paths. This includes building sumps and storm drains, where applicable. For consistency, it is recommended that even hardened barriers are identified. Examples of these would include: hatches, passage doors, and roll-up doors. 2. Enhance the appropriate existing procedures or guidelines, or create a new procedure or guideline, to include more detail on the control measures used to maintain radioactive release limits where monitoring cannot be accomplished. Examples include: ▪ Water fog streams used for smoke scrubbing ▪ Controlling water runoff during fire suppression activities ▪ Covering drains and other similar containment measures 3. Enhance Fire Brigade Guidelines (Procedure RP-29) to instruct Radiation Protection personnel to respond to fires where there are radiological concerns inside and outside the Protected Area. 4. Enhance the appropriate existing procedures or guidelines, or create a new procedure or guideline, to include guidance for crossing RCA/Radioactive Control Zone boundaries including escape routes. 5. Create new fire strategies for yard areas that contain RCAs. This includes the following: ▪ Retired Steam Generator Storage Facility (Building 7777)	4.4.2 and Attachment E

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
		▪ Radiation Materials Control Building (Building 7767) ▪ Hold-Up Ponds ▪ Radiography Vault ▪ Radioactive Materials Containers ▪ Tents Containing Radioactive Material ▪ Mixed Waste Storage ▪ ISFSI Storage of non-ISFSI Radioactive Materials 6. Within each fire strategy, identify the Radiologically Controlled Area (RCA) or Radioactive Control Zone in the written text. 7. Fire Brigade training will be revised to ensure the new guidance proposed in Recommendations 2, 3 and 4 for radioactive release is covered during the established training interval. 8. Add a standard statement for smoke and water runoff to all radiologically controlled area fire strategies to prompt measures to avoid radioactive release. 9. Incorporate all fire fighting strategies into the electronic records management retrieval system (internally referred to as NEDL). This will provide consistency for current users and the ability to conduct effective reviews to ensure all radioactive release recommendations have been incorporated. 10. Add an appendix to the fire strategies for building sump drainage and site storm drains. This is NOT intended to be a detailed plan, but a site overview that identifies areas where runoff has the potential to route to a storm drain or an automatic sump that will pump without radiation monitoring. 11. Develop administrative guidance in collaboration with radiation protection to support ensuring that radioactive release(s) do not exceed limits in the event of a fire in areas where engineering controls will not contain the potential release. Attachment A contains a flow chart of the various considerations needed for administrative controls that can be directed via one or more plant procedures depending upon the performing group(s).	

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
2	1, 2	After the approval of the LAR, in accordance with 10 CFR 50.71(e) and approved exemptions, the CNS UFSAR will be revised. The format and content will be consistent with NEI 04-02 FAQ 12-0062.	5.4
3	1,2	The Design Basis Specification for the Plant Fire Protection, which is the primary fire protection program policy document, will be updated to include the statement that the NRC is the AHJ for fire protection changes requiring approval.	Attachment A, 3.2.2.4
4	1,2	Appropriate fire protection program document(s) will be updated to provide a requirement that if a plant elects to implement the methodologies in EPRI Report TR1006756, that the methodologies will be implemented in their entirety as they pertain to the fire protection systems or features being evaluated.	Attachment A, 3.2.3(1)
5	1,2	The monitoring program required by NFPA 805 Section 2.6 will be implemented after the LAR approval as part of the fire protection program transition to NFPA 805, in accordance with NFPA 805 FAQ 10-0059, and will include a process that reviews fire protection performance and trends in performance. Program specifics are provided in LAR Section 4.6.2.	4.6.2, Attachment A, 3.2.3(3)
6	1,2	Revise station procedures/directives to comply with NFPA 805 Section 3.3.1.2(1).	Attachment A, 3.3.1.2(1)
7	1,2	Appropriate station documentation will be updated to include the requirements for installation of cable above suspended ceilings.	Attachment A, 3.3.5.1
8	1,2	The Fire Strategies will be reviewed and updated to include any changes to equipment important to nuclear safety and other updates pertinent to the NFPA 805 Transition.	Attachment A, 3.4.2.1
9	1,2	The Fire Protection Design Basis Document described in Section 2.7.1.2 of NFPA 805 and necessary supporting documentation described in Section 2.7.1.3 of NFPA 805 will be created as part of transition to 10 CFR 50.48(c) to ensure program implementation following receipt of the safety evaluation. Appropriate cross references will be established to supporting documents as required by Duke Energy processes.	4.7.1

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
10	1, 2	Ensure the CNS configuration control process follows the requirements in NFPA 805 and the guidance outlined in RG 1.174 which requires the use of qualified individuals, procedures that require calculations be subject to independent review and verification, record retention, peer review, and a corrective action program that ensures appropriate actions are taken when errors are discovered. The configuration control requirements should be implemented in accordance with FAQ 12-0061.	4.7.2
11	1, 2	Develop Engineering training guidelines to identify and document required training and mentoring to ensure individuals are appropriately qualified per the requirements of NFPA 805 Section 2.7.3.4 to perform assigned work.	4.7.3
12	1, 2	Revise Shutdown Risk Management procedures to reflect the following recommendations during higher risk evolutions from the calculation entitled, "NFPA 805 Transition Non-Power Fire Area Assessments (Pinch Points Analysis)": ▪ Include CNS specific HRPOS definition. ▪ Limit hot work in affected fire area during Higher Risk Plant Operating States (HRPOS's). ▪ Prohibit hot work in affected fire areas during Higher Risk Plant Operating States (HRPOS's). ▪ Verify that the available fire detection systems located in the affected fire areas are functional. Post firewatch per SLCs in affected fire areas prior to entering Higher Risk Plant Operating States if system(s) are impaired. ▪ Verify that the available fire suppression systems located in the affected fire areas are functional. Post firewatch per SLCs in affected fire areas prior to entering Higher Risk Plant Operating States if system(s) are impaired. ▪ Limit transient combustible storage in affected fire areas during Higher Risk Plant Operating States (HRPOS's). ▪ Prohibit transient combustible storage in affected fire areas during Higher Risk Plant Operating States (HRPOS's). ▪ Provide a firewatch (continuous or periodic) in affected fire areas during Higher Risk Plant Operating States (HRPOS's).	4.3 and Attachment D

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
		▪ Activities in affected fire areas should be rescheduled to non-Higher Risk Plant Operating States (HRPOS's) periods.	
13	1, 2	Following installation of the risk related modifications and the as-built installation details, additional refinements surrounding the modification and any procedural implementation items (Table S-3 Items 12 and 16) will be incorporated into the Fire PRA model and Internal Events model, as required. In addition, a verification will be performed to confirm that the risk results are not appreciably changed. If the as-built change-in-risk estimates exceed the RG 1.174 acceptance guidelines, the responsible feature will be identified and evaluated. Actions taken to address such a case may be one or more of the following: 1) implementing additional modifications, 2) refining the analytical estimates, or 3) requesting that exceeding the guidelines be deemed acceptable in a new LAR.	4.8.2
14	1, 2	Develop formal training program for nonfire brigade personnel that respond to a fire incident.	Attachment A, 3.4.3(b)
15	1, 2	Revise the QA Topical, as appropriate, to update the definition of QA 3 to match post NFPA 805 criteria. QA Topical currently defines QA 3 as: *"QA Condition 3 covers those systems, components, items, and services which are important to fire protection as defined in the Hazards Analysis for each station. The Hazards Analysis is in response to Appendix A of NRC Branch Technical Position APCSB 9.5-1."*	4.7.3
16	1, 2	Implementation items resulting from the feasibility evaluation include: ▪ Corrective Action to add equipment tags to the petcocks for the CA valves. These equipment numbers will be added to Fire Procedure, AP/0/A/5500/045. ▪ Corrective Action to revise steps to Fire Procedure, AP/0/A/5500/045 to add valve numbers (or descriptive nomenclature) as applicable to the individual steps for throttling the CA valves (valve to isolate air, bleed air). ▪ Corrective Action to revise steps to Fire Procedure, AP/0/A/5500/045 to include requiring operators to obtain a climbing harness prior to throttling the CA valves locally. ▪ Corrective Action to add steps to Fire Procedure	Attachment G

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
		AP/0/A/5500/045 to trip the NC pumps locally (if unable to trip from the control room). ▪ Corrective Action to add performance of recovery action drills to Operator training.	
17	1, 2	Update station documentation to indicate requirements for interior floor finishes.	Attachment A, 3.3.3
18	1, 2	Ensure procedures are provided for long-term alignments for makeup of fuel oil, feedwater, and reactor coolant.	4.2.1.2
19	1, 2	Evaluate the transient combustible control procedure for additional controls in the identified fire areas to account for a larger transient fire heat release rate.	RAI PRA-15b
20	1, 2	Perform an evaluation to determine the RCP Seal response to loss of seal cooling due to spurious valve operation caused by a fire.	Duke/NRC Conference Call from 4/11/2016