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984-229-2512

10 CFR 50.90

March 12, 2020
Serial: RA-20-0012

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400
Renewed License No. NPF-63

Subject: License Amendment Request to Revise Technical Specifications Related to Accident Monitoring Instrumentation, Refueling Operations Instrumentation, and Electrical Equipment Protective Devices

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Duke Energy Progress, LLC (Duke Energy), hereby requests a revision to Shearon Harris Nuclear Power Plant, Unit 1 (HNP), Technical Specifications (TS). Specifically, the proposed change would revise TS 3.3.3.6, "Accident Monitoring Instrumentation," to revise the allowed outage times for inoperable post-accident monitoring (PAM) instrumentation, eliminate the shutdown requirement for inoperable PAM instruments when the minimum required channels are operable, and add a provision that allows a separate action entry for each instrument function. Duke Energy is also proposing to revise TS 3.9.2, "Instrumentation," to remove the audible indication requirement in Mode 6, as well as relocate the requirements for electrical equipment protective devices in TS 3.8.4.1, "Containment Penetration Conductor Overcurrent Protective Devices," and TS 3.8.4.2, "Motor-Operated Valves Thermal Overload Protection," from TS to licensee-controlled procedure PLP-106, "Technical Specification Equipment List Program." These changes are consistent with Revision 4 of NUREG-1431, "Standard Technical Specifications – Westinghouse Plants" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12100A222). Additionally, Duke Energy is proposing a revision to the Note in TS 3.9.2 to allow for the substitution of Wide Range Neutron Flux Monitors for both of the Source Range Neutron Flux Monitors required to be operable while in Mode 6.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and it has been concluded that the proposed changes involve no significant hazards consideration. Enclosure 1 of this license amendment request provides Duke Energy's evaluation of the proposed changes. Enclosure 2 provides a copy of the proposed TS changes. Enclosure 3 provides a copy of the proposed TS Bases changes for information only, as they will be implemented in accordance with the TS Bases Control Program upon implementation of the amendment.

Approval of the proposed license amendment is requested within twelve months of acceptance. The amendment shall be implemented within 90 days from approval.

In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the designated North Carolina State Official.

This letter contains no regulatory commitments.

Please refer any questions regarding this submittal to Art Zaremba, Manager – Nuclear Fleet Licensing, at (980) 373-2062.

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

Executed on March 12, 2020.

Sincerely,

Kim Maza
Site Vice President
Harris Nuclear Plant

Enclosures:

1. Evaluation of the Proposed Changes
2. Proposed Technical Specification Changes (Mark-up)
3. Proposed Technical Specification Bases Changes (Mark-up)

cc: J. Zeiler, NRC Sr. Resident Inspector, HNP
W. L. Cox, III, Section Chief, N.C. DHSR
T. Hood, NRC Project Manager, HNP
L. Dudes, NRC Regional Administrator, Region II

ENCLOSURE 1

EVALUATION OF THE PROPOSED CHANGES

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

15 PAGES PLUS THE COVER

Evaluation of the Proposed Changes

License Amendment Request to Revise Technical Specifications Related to Accident Monitoring Instrumentation, Refueling Operations Instrumentation and Electrical Equipment Protective Devices

1.0 SUMMARY DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, Duke Energy Progress, LLC (Duke Energy), hereby requests a revision to Shearon Harris Nuclear Power Plant, Unit 1 (HNP), Technical Specifications (TS). Specifically, the proposed change would revise TS 3.3.3.6, “Accident Monitoring Instrumentation,” to revise the allowed outage times (AOTs) for inoperable post-accident monitoring (PAM) instrumentation, eliminate the shutdown requirement for inoperable PAM instruments when the minimum required channels are operable, and add a provision that allows a separate action entry for each instrument function. Duke Energy is also proposing to revise TS 3.9.2, “Instrumentation,” to remove the audible indication requirement in Mode 6, as well as relocate the requirements for electrical equipment protective devices in TS 3.8.4.1, “Containment Penetration Conductor Overcurrent Protective Devices,” and TS 3.8.4.2, “Motor-Operated Valves Thermal Overload Protection,” from TS to licensee-controlled procedure PLP-106, “Technical Specification Equipment List Program.” These changes are consistent with Revision 4 of NUREG-1431, “Standard Technical Specifications – Westinghouse Plants” (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12100A222). Additionally, Duke Energy is proposing a revision to the Note in TS 3.9.2 to allow for the substitution of Wide Range Neutron Flux Monitors (WRNFMs) for both of the Source Range Neutron Flux Monitors (SRNFMs) required to be operable while in Mode 6.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

Accident Monitoring Instrumentation

Per the HNP TS Bases, the operability of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide (RG) 1.97, Revision 3, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," May 1983 and NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980.

Nuclear Instrumentation

The primary function of nuclear instrumentation is to safeguard the reactor by monitoring the neutron flux and generating appropriate trips and alarms for various phases of reactor operating and shutdown conditions. Various types of neutron detectors, with appropriate solid-state electronic circuitry, are used to monitor the leakage neutron flux from a shutdown condition to 120 percent of full power. The power range channels are capable of recording overpower excursions up to 200 percent of full power. The neutron flux covers a wide range between these extremes. Therefore, monitoring with several ranges of instrumentation is necessary. The lowest range ("source" range) covers six decades of leakage neutron flux. The lowest observed

count rate depends on the strength of the neutron sources in the core and the core multiplication associated with the shutdown reactivity. This is generally greater than two counts per seconds (cps). The next range ("intermediate" range) covers eight decades. Detectors and instrumentation are chosen to provide overlap between the higher portion of the source range and the lower portion of the intermediate range. The highest range of instrumentation ("power" range) covers approximately two decades of the total instrumentation range. This is a linear range that overlaps with the higher portion of the intermediate range.

The system described above provides control room indication and recording of signals proportional to reactor neutron flux during core loading, shutdown, startup and power operation, as well as during subsequent refueling.

Electrical Equipment Protective Devices

The containment penetration conductor overcurrent protective devices protect penetration integrity in the event of an electrical fault. These protective devices ensure that long or short duration overcurrents, which are capable of damaging a penetration, will be interrupted before they cause damage.

The function of the motor-operated valve (MOV) thermal overload protection device is to provide equipment protection to prevent overheating of the motor winding during plant operation. However, under accident conditions the thermal overload protection devices are bypassed upon engineered safety feature actuation signals (i.e., safety injection) to preclude any potential for thermal overload protection devices causing nuisance tripping of the associated loads. This is aligned with Regulatory Guide 1.106, Revision 1, “Thermal Overload Protection for Electric Motors on Motor-Operated Valves” (ADAMS Accession No. ML003740323), Position C.1.

2.2 Current Technical Specifications Requirements

The HNP TS are based upon the format and content of the NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," series. As a result, the HNP TS numbers and associated Bases numbers differ from those contained in NUREG-1431.

HNP TS 3.3.3.6 addresses the required operability of accident monitoring channels in Modes 1, 2, and 3. With the number of operable accident monitoring instrumentation channels less than the total required per TS Table 3.3-10, “Accident Monitoring Instrumentation,” restoration of the inoperable channel(s) is required within 7 days, or be in at least hot standby within the next 6 hours and in at least hot shutdown within the following 6 hours. For the instrumentation within the scope of this LAR, if the number of operable channels is less than the minimum required per TS Table 3.3-10, restoration is required for the inoperable channel(s) within 48 hours or the unit is to be in at least hot standby within the next 6 hours and in at least hot shutdown within the following 6 hours. The aforementioned actions do not apply to the accident monitoring channels associated with the In Core Thermocouples or Reactor Vessel Level, as these were already adjusted per License Amendment No. 110 (ADAMS Accession No. ML021560096) to align with NUREG-1431, Revision 2. The restoration time for one channel out of service was extended from 7 days to 30 days, and the requirement to shut down was replaced with one to submit a written report to the NRC within 14 days. The restoration time for two channels out of service was also extended, from 48 hours to 7 days.

HNP TS 3.8.4.1 addresses the required operability of containment penetration conductor overcurrent protective devices in Modes 1, 2, 3, and 4, as specified in the Technical Specification Equipment List Program contained within PLP-106. With one or more of the containment penetration conductor overcurrent protective devices inoperable, operability is to be restored or action must be taken to deenergize the circuit(s) by tripping the associated backup circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours. The affected system or component must be declared inoperable and the backup circuit breaker must be verified to be tripped or the inoperable circuit breaker racked out or removed at least once per 7 days thereafter. Otherwise, the unit must be in hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

HNP TS 3.8.4.2 addresses the required operability of the thermal overload protection of the MOVs during periods in which the MOVs are required to be operable. Those valves requiring bypass protection, as specified in the Technical Specification Equipment List Program contained in PLP-106, shall be bypassed only under accident conditions by an operable bypass device. With the thermal overload protection for one or more of the required valves not capable of being bypassed under conditions for which it is designed to be bypassed, the inoperable device is to be restored or a means provided to bypass the thermal overload within 8 hours. Otherwise, the affected valve(s) will need to be declared inoperable and the appropriate action statement(s) of the affected system(s) applied.

HNP TS 3.9.2 addresses instrumentation operability for reload operations. In Mode 6, a minimum of two SRNFMs shall be operable, each with a continuous visual indication in the control room and one with audible indication in the containment and control room. License Amendment No. 105 (ADAMS Accession No. ML012760270) added a note to the TS to allow for the substitution of a WRNFM for one of the SRNFMs provided the operable SRNFM is capable of providing audible indication where it is required.

2.3 Reason for the Proposed Change

As stated above, HNP TS are based upon the format and content of NUREG-0452. However, the NRC allows for selective incorporation of Improved Standard Technical Specifications (ISTS) requirements (i.e., NUREG-1431 for Westinghouse Plants). As discussed in Section 16.0, Revision 3, “Technical Specifications,” dated March 2010 (ADAMS Accession No. ML100351425), of NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: Light Water Reactor (LWR) Edition,” TS change requests for facilities with TS based on previous standard TS should comply with comparable provisions in current ISTS NUREGs to the extent possible or justify deviations from the ISTS. The proposed changes found in this license amendment request are generally consistent with the requirements in the current ISTS.

TS 3.3.3.6 – Accident Monitoring Instrumentation

The AOTs in HNP TS 3.3.3.6 impacted by this license amendment request are based on Revision 4 of NUREG-0452. With an accident monitoring channel inoperable, NUREG-0452 allows 7 days to restore the channel to operable status. If the instrument channel cannot be restored to operable status within the time allowed, a plant shutdown is required. If no instrument channels are available to monitor a particular parameter, the unit has 48 hours to restore the inoperable channel(s) to operable status before a plant shutdown is required.

During the development of the ISTS, it was determined that the 7-day and 48-hour AOTs were overly restrictive. The ISTS extended the 7-day AOT for one inoperable instrument channel and the 48-hour AOT for two inoperable channels to 30 days and 7 days, respectively. Additionally, the ISTS removed the shut down requirement for a single inoperable instrument channel. With one channel inoperable beyond 30 days, a Special Report outlining the preplanned method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels must be submitted to the NRC within the next 14 days. With two channels inoperable for more than 7 days, the ISTS requires either a plant shutdown or submittal of a Special Report, as discussed above, depending on the particular channel that is out of service. The ISTS also contains a provision that permits a separate condition entry for each inoperable instrument function.

The proposed changes would revise TS 3.3.3.6 to be consistent with Limiting Condition for Operation (LCO) 3.3.3, “Post Accident Monitoring (PAM) Instrumentation,” in the ISTS (NUREG-1431, Revision 4).

TS 3.9.2 – Instrumentation

HNP TS 3.9.1, “Boron Concentration,” places limitations on reactivity conditions in Mode 6 that ensure that the reactor will remain subcritical during core alterations and that a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses and are specified in the cycle-specific Core Operating Limits Report (COLR). This TS also contains administrative controls over the required valves during refueling operations that preclude the possibility of uncontrolled boron dilution of the filled portion of the Reactor Coolant System (RCS). This action prevents flow to the RCS of unborated water by closing flow paths from sources of unborated water, similar to NUREG-1431 ISTS 3.9.2, “Unborated Water Source Isolation Valves.” With the isolation of the unborated water sources during Mode 6, the audible indication in the containment and control room from HNP TS 3.9.2 may be eliminated. This is in alignment with NUREG-1431 ISTS 3.9.3, “Nuclear Instrumentation,” for plants that isolate all boron dilution paths.

HNP SRNFM inoperability has previously delayed refueling activities. As such, concurrent with the elimination of the requirement for audible indication in the containment and control room in Mode 6, HNP is also proposing a change to the Note in TS 3.9.2 that would permit the substitution of both SRNFMs with alternate installed detectors during refueling operations, an expansion of the allowance provided by License Amendment No. 105.

TS 3.8.4.1 and TS 3.8.4.2 – Electrical Equipment Protective Devices

The NRC provided guidance for the contents of TS in its “Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors” (58 FR 39132, July 22, 1993). In particular, the NRC indicated that certain items could be relocated from the TS to licensee-controlled documents. The Final Policy Statement identified future criteria to be used in determining whether particular safety functions are required to be included in the TS. The criteria are restated below.

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

The NRC subsequently adopted an amendment to 10 CFR 50.36 (60 FR 36953, July 19, 1995) to codify and incorporate these criteria.

The NRC policy statement provides that those existing TS requirements which do not satisfy these four specified criteria may be relocated to licensee-controlled documents, such that future changes could be made to these provisions pursuant to 10 CFR 50.59. Relocation of the TS 3.8.4.1 and TS 3.8.4.2 requirements is consistent with NUREG-1431 ISTS.

2.4 Description of the Proposed Change

TS 3.3.3.6 – Accident Monitoring Instrumentation

A new note will be added to TS 3.3.3.6 that addresses the ability to separate action entry for each inoperable PAM instrument, consistent with the ISTS. The actions of this TS may be entered independently for each instrument listed in TS Table 3.3-10. The AOT of the inoperable instruments will be tracked separately, starting from the time of discovery of the inoperable instrument channel.

Action a will be revised to require the inoperable channel(s) to be restored within 30 days. This is consistent with the completion time in LCO 3.3.3 of the ISTS. It will also reflect the replacement of the shutdown requirement with the requirement to submit a Special Report pursuant to Specification 6.8.2 within the next 14 days if the 30-day AOT is exceeded, which is consistent with the required action in LCO 3.3.3 of the ISTS.

Action b will be revised to require the inoperable channels to be restored within 7 days, with the requirement to shut down should operability not be reestablished. This is consistent with the required action in LCO 3.3.3 of the ISTS.

In aligning with Actions a and b for ISTS 3.3.3, the actions specific to accident monitoring instrumentation channels for In Core Thermocouples and Reactor Vessel Level (i.e., Actions d and e) are no longer necessary. As such, Actions d and e will be deleted in their entirety.

TS 3.9.2 – Instrumentation

TS 3.9.2 will be revised to remove the requirement that one of the two SRNFMs provide audible indication in the containment and control room. Additionally, the Note that addresses the ability to substitute a WRNFM for one of the SRNFM, provided the operable SRNFM is capable of providing audible indication in the containment and the control room, will be revised to reflect the removal of the audible indication requirement and allow for the substitution of both SRNFMs with WRNFMs.

TS 3.8.4.1 and TS 3.8.4.2 – Electrical Equipment Protective Devices

The requirements of TS 3.8.4.1 and TS 3.8.4.2 will be relocated to PLP-106, a licensee-controlled document where changes are controlled in accordance with 10 CFR 50.59. The following will replace the relocated content in TS: “Specifications 3/4.8.4.1 and 3/4.8.4.2 have been deleted from Technical Specifications and relocated to plant procedure PLP-106. Pages 3/4 8-20 through 3/4 8-43 have been deleted.” The TS Index Pages will be adjusted accordingly to reflect the removal of these TS entries. In addition, the Bases for these TS will also be relocated to PLP-106 to reflect the proposed changes to their respective specifications.

3.0 TECHNICAL EVALUATION

TS 3.3.3.6 – Accident Monitoring Instrumentation

HNP TS 3.3.3.6 ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of RG 1.97, Revision 3 and NUREG-0737, November 1980.

The changes proposed in this license amendment request modify the actions for inoperable PAM instrumentation while retaining the existing required instrumentation. The revised actions are consistent with the conditions and completion times contained in NUREG-1431, Revision 4. Specifically, HNP TS 3.3.3.6 and ISTS 3.3.3 both ensure the operability of instrumentation that monitors Type A and Category 1 variables as defined in RG 1.97 while in Modes 1, 2, and 3. HNP TS 3.3.3.6 also has an exception to TS 3.0.4, allowing for entry into Modes 1, 2, and 3 with inoperable PAM instrumentation while the associated action requires a shutdown after a specified period of time. This is similar to ISTS 3.3.3 permitting entry into Modes 1, 2, and 3 under the same conditions, in accordance with ISTS LCO 3.0.4.b, after performing a risk assessment that addresses the inoperable PAM instrumentation. Both the ISTS and HNP TS require a Channel Check and Channel Calibration of applicable PAM instrument channels in accordance with the Surveillance Frequency Control Program.

The addition of a new Note to TS 3.3.3.6 allows for a separate action entry for each inoperable PAM instrument. The actions of this TS may be entered independently for each instrument listed in TS Table 3.3-10. The AOTs of the inoperable instruments will be tracked separately, starting from the time of discovery of the inoperable instrument channel. This change clarifies the application of the actions for multiple inoperable instruments, and is consistent with the note in the ISTS that states: "Separate Condition entry is allowed for each Function."

HNP TS 3.3.3.6 Action a currently requires restoring an inoperable PAM instrument to operable status within 7 days when the number of operable channels is less than the total number of

channels, and the minimum channels operable requirement is met. The proposed change presented in this license amendment request revises the AOT to allow 30 days to restore an inoperable channel. The 30-day AOT takes into account the remaining operable channel(s) or other non-RG 1.97 instrumentation, the passive nature of the instruments (these instruments provide information but do not provide inputs to systems that result in automatic actions), and the low probability of an event requiring PAM instrumentation during the 30-day period. Additionally, the current TS also requires a plant shutdown following expiration of the 7-day AOT. The proposed change would eliminate the shutdown requirement and add a requirement for submitting to the NRC a 14-day Special Report discussing the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrument to operable status. This action is appropriate in lieu of a plant shutdown since alternate actions are identified and the likelihood of an event requiring information from this instrumentation is low.

HNP TS 3.3.3.6 Action b currently allows 48 hours to restore operability to applicable inoperable PAM instruments when the number of operable channels is less than the minimum channels operable requirement, whereas the proposed change would revise the AOT to permit 7 days to restore PAM instrument operability, which is consistent with the ISTS. This 7-day AOT is based on the relatively low probability of an event requiring reliance on the PAM instrumentation. In requiring restoration of one inoperable channel within 7 days, the risk that the PAM function will be degraded in the event of an accident is limited. Continuous operation with less than the required minimum channels is not acceptable. As such, a plant shutdown is required with less than the required minimum channels operable following expiration of the 7-day AOT.

TS 3.9.2 – Instrumentation

Per TS 3.9.2, at least two operable source range monitors are required in Mode 6. The function of the source range monitors is to provide direct neutron flux monitoring of the core to detect changes in core reactivity, which could potentially result in a loss of the required shutdown margin. One monitor provides the required continuous audible and visual indications in containment and in the control room while the redundant monitor provides continuous visual indication in the control room.

The HNP accident analyses do not credit operation of SRNFMs in Mode 6 to mitigate the consequences of a boron dilution accident or an inadvertent loading and operation of a fuel assembly in an improper position. As stated generically in the ISTS Bases for NUREG-1431, “The need for a safety analysis for an uncontrolled boron dilution accident is eliminated by isolating all unborated water sources as required by LCO 3.9.2, ‘Unborated Water Source Isolation Valves.’ ” HNP Final Safety Analysis Report (FSAR) Section 15.4.6.3 states that no analysis was performed for a boron dilution event for Mode 6, since administrative controls are in place to prevent an uncontrolled boron dilution while the unit is in the refueling mode. Additionally, SRNFMs are not credited for an inadvertent loading and operation of a fuel assembly in an improper position.

Duke Energy is proposing to align with the ISTS allowance to only require the visual monitoring function for the Refueling Operations Nuclear Instrumentation TS, removing the requirement for audible indication in the containment and control room. HNP TS 3.9.1 places limitations on reactivity conditions in Mode 6 that ensure that the reactor will remain subcritical during core alterations and that a uniform boron concentration is maintained for reactivity control in the

water volume having direct access to the reactor vessel, consistent with the initial conditions assumed for the boron dilution incident in the safety analyses and specified in the cycle-specific COLR. The TS also contains administrative controls over the required valves during refueling operations that preclude the possibility of uncontrolled boron dilution of the filled portion of the RCS, preventing flow to the RCS of unborated water by closing flow paths from sources of unborated water. With the isolation of the unborated water sources during Mode 6, the need for operator action in response to audible count rate instrumentation is no longer necessary. As such, the audible indication in the containment and control room may be eliminated from TS. System functionality is not impacted by this proposed change.

Duke Energy proposes to permit the use of available WRNFMs to meet the TS in Mode 6, if both source range instruments were inoperable for maintenance activities. As discussed in the safety evaluation for HNP License Amendment No. 105, the WRNFM provides the same level of quality assurance, redundancy, and necessary display range as the SRNFM. Although the WRNFM detector has a neutron sensitivity of 1.0 cps/nv, compared to the SRNFM detector sensitivity of 10 cps/nv, the difference in sensitivity is acceptable since the purpose of the detectors is to monitor trends in neutron flux, which can be accomplished with the visible indication on the WRNFM channel.

A WRNFM channel (source range indicator) is required to be operable per TS 3.3.3.5, "Remote Shutdown System" (Modes 1-3). The function of the WRNFM for TS 3.3.3.5 is to monitor the core reactivity in a shutdown condition, which is also the function of the SRNFM in Mode 6. Therefore, there are no potential adverse consequences of using a WRNFM in place of an SRNFM. The required shutdown margin will continue to be maintained and the required visual indication in the control room will continue to be provided.

TS 3.8.4.1 and TS 3.8.4.2 – Electrical Equipment Protective Devices

Regulation 10 CFR 50.36c(2)(ii) contains the requirements for items that must be in TS. This regulation provides four criteria that can be used in the determination of the requirements that must be included in the TS. Items that do not meet any of the four criteria can be relocated from TS to a licensee-controlled document, in which the licensee is able to change the relocated requirements, if necessary, in accordance with 10 CFR 50.59. This should result in significant reductions in time and expense to modify requirements that have been relocated while not adversely affecting plant safety. The four criteria and an evaluation of the HNP TS proposed for relocation are provided below.

Criterion 1 Installed instrumentation that is used to detect, and indicated in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

This criterion addresses instrumentation installed to detect excessive RCS leakage. TS 3.8.4.1 addresses the containment penetration conductor overcurrent protective devices that minimize the damage from a fault in a component inside containment, or in cabling which penetrates containment. This prevents an electrical penetration from being damaged in such a way that the containment structure could be breached. TS 3.8.4.2 addresses bypassing the thermal overload protection for certain MOVs during accident conditions, minimizing the potential that the actuation of a thermal overload device could prevent a vital piece of equipment from performing its intended function. As such, these TS do not cover installed instrumentation used to detect, and indicate in the control

room, a significant degradation of the reactor coolant pressure boundary, and therefore do not satisfy Criterion 1.

Criterion 2 A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The purpose of Criterion 2 is to capture those process variables that have initial values assumed in the design basis accident and transient analyses and that are monitored and controlled during power operation. This criterion also includes active design features (e.g., high-pressure/low-pressure system valves and interlocks) and operating restrictions (pressure/temperature limits) needed to preclude unanalyzed accidents and transients.

Both the containment penetration conductor overcurrent protective devices and the bypassing of the MOV thermal overload protection for certain valves during accident situations help preserve the assumptions of the accident analysis by enhancing proper equipment operation. However, they are not process variables, design features, or operating restrictions that are initial conditions of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. As such, neither the containment penetration conductor overcurrent protective devices nor the MOV thermal overload protection, and the need to bypass that protection during accident conditions, satisfy Criterion 2.

Criterion 3 A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The purpose of Criterion 3 is to capture only those structures, systems, and components that are part of the primary success path of the safety analysis (the actions required to mitigate the consequences of the design basis accidents and transients). The primary success path of a safety analysis consists of the combinations and sequences of equipment needed to operate so that the plant responses to the design basis accident and the transients limit the consequences of these events within the appropriate acceptance criteria. Also captured by this criterion are those support and actuation systems that are necessary in the primary success path, but this criterion does not include backup and diverse equipment.

The containment penetration conductor overcurrent protective devices are installed to minimize the damage from a fault in a component inside containment, or in conductors which penetrate containment. The MOV thermal overload protection is installed to provide equipment protection, where bypassing the thermal overload protection of certain MOVs during accident conditions minimizes the potential that the actuation of a thermal overload device could prevent a vital piece of equipment from performing its intended function. However, neither the containment penetration conductor overcurrent protective devices nor the MOV thermal overload protection are structures, systems, or components that are part of the primary success path and which function or actuate to mitigate a design basis accident or transient that either assumes the failure of or

presents a challenge to the integrity of a fission product barrier. As such, they do not satisfy Criterion 3.

Criterion 4 A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The purpose of Criterion 4 is to capture only those structures, systems, and components that operating experience and probabilistic risk assessment has shown to be significant to the public health and safety. The containment penetration conductor overcurrent protective devices and the MOV thermal overload protection are not structures, systems, or components that operating experience or probabilistic safety assessment has shown to be significant to the public health and safety. The Maintenance Rule (10 CFR 50.65) does not require these types of protections to be monitored for availability. Additionally, a review of industry operating experience did not produce any examples where either protection has had a significant adverse effect on public health and safety. As such, they do not meet Criterion 4.

The requirements contained in TS 3.8.4.1 and TS 3.8.4.2 do not meet any of the 10 CFR 50.36c(2)(ii) criteria for items that must be in TS. Therefore, the TS requirements can be relocated.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements and Guidance

10 CFR 50 Appendix A, General Design Criteria 13, 20, and 22

10 CFR Part 50 Appendix A, General Design Criterion (GDC) 13 states, “Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.”

10 CFR 50 Appendix A, GDC 20, “Protection System Functions,” states, in relevant part, that, the protection system shall be designed (1) to initiate automatically the operation of appropriate systems, including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

10 CFR 50 Appendix A, GDC 22, “Protection System Independence,” states, in relevant part, that the protection system shall be designed to assure that the effects of natural phenomena, and of normal operating, maintenance, testing, and postulated accident conditions on redundant channels do not result in the loss of the protection function or shall be demonstrated to be acceptable on some other defined basis.

The proposed changes of this license amendment request do not impact the ability of Duke Energy to continue to meet these criteria.

10 CFR 50.36, "Technical specifications"

The NRC's regulatory requirements related to the content of the TS are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications." This regulation requires that the TS include items in the following five specific categories: (1) safety limits, limiting safety system settings, and limiting control settings, (2) LCOs, (3) Surveillance Requirements, (4) design features, and (5) administrative controls. The regulation does not specify the particular requirements to be included in a plant's TS.

Specifically, 10 CFR 50.36(c)(2)(ii) requires that a TS LCO be established for each item meeting one or more of the following criteria:

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2: A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3: A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4: A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Items not meeting any of these four criteria can be relocated from the TS to a licensee-controlled document. The licensee can then change the relocated requirements, if necessary, in accordance with 10 CFR 50.59.

4.2 Precedents

TS 3.3.3.6 – Accident Monitoring Instrumentation

The NRC previously approved a change to the HNP TS per letter dated May 30, 2002 (ADAMS Accession No. ML021560096), that revised the LCO Actions in TS 3/4.3.3.6 for Reactor Vessel Level and In Core Thermocouple to be based on the guidance contained in NUREG-1431. Specifically, the change revised the restoration time for one channel of In Core Thermocouple or Reactor Vessel Level out of service from 7 days to 30 days, with the added requirement to submit a written report to the NRC. Additionally, the restoration time for two channels of In Core Thermocouple or Reactor Vessel Level out of service was revised from 48 hours to 7 days.

The NRC also approved a change to the TS for Seabrook Station Unit 1 per letter dated June 15, 2005 (ADAMS Accession No. ML050630319). The amendment revised the AOTs for inoperable PAM instrumentation, eliminated the shutdown requirement for inoperable PAM

instruments when the minimum required channels are operable, and added a provision that allowed a separate action entry for each instrument function, which is consistent with Revision 3 of NUREG-1431.

TS 3.9.2 – Instrumentation

The NRC previously approved a change to the TS for Salem Nuclear Generating Station, Unit Nos. 1 and 2, per letter dated March 7, 2016 (ADAMS Accession No. ML16035A087). The amendment allowed for the elimination of the audible indication requirement associated with the SRNFMs in Mode 6. This amendment allowed Salem to align with the NUREG-1431, Revision 4 Bases Section B 3.9.3, "Background," stating that for plants that isolate all boron dilution paths, the source range instrumentation operability includes only a visual monitoring function. Unlike the Salem amendment, HNP is not proposing the addition of a new TS LCO for unborated water source isolation valves since administrative controls already exist in TS 3.9.1 to isolate unborated water sources in Mode 6 to preclude a boron dilution event.

TS 3.8.4.1 and TS 3.8.4.2 – Electrical Equipment Protective Devices

The NRC previously approved a change to Millstone Nuclear Power Station, Unit No. 3 (Millstone), TS per letter dated January 16, 2001 (ADAMS Accession No. ML003775927), that relocated the requirements for containment penetration conductor overcurrent and MOV thermal overload protective devices from the TS to its Technical Requirements Manual (TRM). While HNP does not have a TRM, PLP-106 is a procedure incorporated by reference into the FSAR, and is subject to the update and reporting requirements of 10 CFR 50.71(e) and change controls of 10 CFR 50.59.

4.3 Significant Hazards Consideration

Pursuant to 10 CFR 50.90, Duke Energy Progress, LLC (Duke Energy), hereby requests a revision to the Technical Specifications (TS) for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP). Specifically, the proposed change would revise TS 3.3.3.6, "Accident Monitoring Instrumentation," to revise the allowed outage times (AOTs) for inoperable post-accident monitoring (PAM) instrumentation, eliminate the shutdown requirement for inoperable PAM instruments when the minimum required channels are operable, and add a provision that allows a separate action entry for each instrument function. Duke Energy is also proposing to revise TS 3.9.2, "Instrumentation," to remove the audible indication requirement in Mode 6, as well as relocate the requirements for electrical equipment protective devices in TS 3.8.4.1, "Containment Penetration Conductor Overcurrent Protective Devices," and TS 3.8.4.2, "Motor-Operated Valves Thermal Overload Protection," from TS to licensee-controlled procedure PLP-106, "Technical Specification Equipment List Program." These changes are consistent with Revision 4 of NUREG-1431, "Standard Technical Specifications – Westinghouse Plants" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12100A222). Additionally, Duke Energy is proposing a revision to the Note in TS 3.9.2 to allow for the substitution of Wide Range Neutron Flux Monitors (WRNFMs) for both of the Source Range Neutron Flux Monitors (SRNFMs) required to be operable while in Mode 6.

Duke Energy has evaluated whether or not a significant hazards consideration is warranted with the proposed amendment by addressing the three criterion set forth in 10 CFR 50.92(c) as discussed below:

(1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed changes revise the actions and AOTs for inoperable PAM instrumentation. The PAM instrumentation is not an initiator of any previously evaluated accident. Furthermore, the PAM instruments are passive devices; the instruments do not actuate or control any plant systems or components. As a result, the probability of any accident previously evaluated is not increased by these proposed changes. While this change extends the AOT for inoperable instruments, the TS will continue to require the availability of operable PAM instrumentation for monitoring and assessing specific plant parameters during and following an accident. The PAM instruments have no impact on the ability of systems to perform the safety functions of shutting down the reactor, removing decay heat, controlling radioactive releases, or mitigating accident consequences. The length of time that a PAM instrument has been inoperable has no effect on the consequences of an accident should an accident occur. As such, extending the AOTs for these instruments will not significantly increase the consequences of accidents previously evaluated.

The proposed changes to remove the audible indication requirement of the SRNFMs and permit the substitution of both source range neutron monitors with wide range flux monitors only involve reactor core monitoring requirements during Mode 6. These monitoring requirements are not credited for accident mitigation. Alternate monitors are provided with the accuracy and sensitivity required to adequately monitor changes in the core reactivity levels during refueling activities. Neutron flux monitors are for indication only and do not interface with other structures, systems, or components that might initiate an accident. Additionally, an uncontrolled boron dilution accident cannot occur during refueling as a result of a reactor coolant makeup system malfunction. This accident is prevented by administrative controls which isolate the Reactor Coolant System from the potential source of unborated water. As such, this proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to relocate the requirements for containment penetration conductor overcurrent and motor-operated valve (MOV) thermal overload protective devices from TS to plant procedure PLP-106 will have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design basis accidents will not change. Operation of the containment penetration conductor overcurrent and MOV thermal overload protective devices are not accident initiators and cannot cause an accident. The relocation of requirements for the containment penetration conductor overcurrent and MOV thermal overload protective devices from TS to licensee-controlled procedure PLP-106 will have no effect on the probability or consequences of any accident previously evaluated.

Therefore, there will be no significant increase in the probability or consequences of an accident previously evaluated.

(2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed changes neither install or remove any plant equipment, nor alter the design, physical configuration, or mode of operation of any plant structure, system, or component. The accident monitoring instrumentation consists of passive devices and is not an initiator of any accident. No physical changes are being made to the plant, so no new accident causal mechanisms are being introduced.

Neutron flux monitors are for indication only and do not interface with other structures, systems, or components that might initiate an accident. The proposed change related to the source range monitors in Mode 6 will not modify plant systems or operate plant components such that a new or different accident scenario is created.

The proposed changes to relocate the requirements from TS to the plant procedure PLP-106 will not alter the plant configuration (no new or different type of equipment will be installed) or require any new or unusual operator actions. The proposed changes will not introduce any new failure modes that could result in a new accident. Also, the response of the plant and the operators following the design basis accidents is unaffected by the changes.

Therefore, operation of the facility in accordance with the proposed changes will not create the possibility of a new or different kind of accident from any previously evaluated.

(3) Does the proposed amendment involve a significant reduction in the margin of safety?

The proposed changes do not alter the design, configuration, operation, or function of any plant system, structure, or component. The ability of any operable structure, system, or component to perform its designated safety function is unaffected by this change. The proposed changes associated with the accident monitoring instrumentation allows an appropriate time to restore inoperable PAM instruments to operable status when one or more channels of a required instrument function become inoperable. The additional time to restore an inoperable channel to operable status is appropriate based on the low probability of an event requiring the accident monitoring instrumentation during the interval, providing a reasonable time for repair of the instrumentation, and alternate means of obtaining the required information. Moreover, this change retains the requirement to shut down the plant if less than a minimum number of instrument channels of the required parameters are operable, as applicable.

The proposed changes associated with the SRNFMs will maintain adequate monitoring of core reactivity in Mode 6. The proposed changes maintain requirements for two operable neutron flux monitors. Neutron flux monitors are not credited in the HNP accident analyses for accident mitigation in Mode 6. As such, there is no significant reduction in margin of safety.

The proposed changes will also relocate the requirements for containment penetration conductor overcurrent and MOV thermal overload protective devices from TS to the plant procedure PLP-106. Any future changes to the relocated requirements will be in accordance with 10 CFR 50.59 and approved plant procedures. The proposed changes will have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design basis accidents will not

change. In addition, the relocated requirements do not meet any of the 10 CFR 50.36c(2)(ii) criteria on items for which TS must be established.

Therefore, operation of the facility in accordance with the proposed changes will not involve a significant reduction in the margin of safety.

Based upon the above evaluation, Duke Energy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATIONS

Duke Energy has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined by 10 CFR 20, or it would change an inspection or surveillance requirement. However, the proposed changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs be prepared in connection with the proposed amendment.

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

13 PAGES PLUS THE COVER

BASES

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION: <INSERT 1>

a. With the number of OPERABLE accident monitoring instrumentation channels~~, except In Core Thermocouples and Reactor Vessel Level~~, less than the Total Required Number of Channels requirements shown in Table 3.3-10 restore the inoperable channel(s) to OPERABLE status within ~~7~~ 30 days, or ~~be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.~~ <INSERT 2>

b. With the number of OPERABLE accident monitoring instrumentation channels, except the radiation monitors, the Pressurizer Safety Valve Position Indicator, the Reactor Coolant System Subcooling Margin Monitor, ~~In Core Thermocouples or Reactor Vessel Level~~, less than the Minimum Channels OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within ~~48 hours~~ 7 days or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours. or

c. With the number of OPERABLE accident monitoring instrumentation channels for the radiation monitor(s), the Pressurizer Safety Valve Position Indicator*, or the Reactor Coolant System Subcooling Margin Monitor#, less than the Minimum Channels OPERABLE requirements of Table 3.3-10, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and either restore the inoperable channel(s) to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission, pursuant to Specification 6.9.2, within the next 14 days, that provides actions taken, cause of the inoperability, and the plans and schedule for restoring the channel(s) to OPERABLE status.

d. ~~With the number of OPERABLE accident monitoring instrumentation channels for In Core Thermocouples or Reactor Vessel Level less than the total required number of channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 30 days or submit a Special Report, pursuant to specification 6.9.2, within the following 14 days from the time the action is required. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels to operable status.~~ DELETED.

e. ~~With the number of OPERABLE accident monitoring instrument channels for In Core Thermocouples or Reactor Vessel Level less than the minimum channels OPERABLE requirement of Table 3.3-10, either restore one channel to OPERABLE status within 7 days or be in at~~

DELETED.

LIMITING CONDITION FOR OPERATION

~~least HOT STANDBY in the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.~~

f. The provisions of Specification 3.0.4 are not applicable.

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* The alternate method shall be a check of safety valve piping temperatures and evaluation to determine position.

\# The alternate method shall be the initiation of the backup method as required by Specification 6.8.4.d.

SURVEILLANCE REQUIREMENTS

4.3.3.6 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in Table 4.3-7.

< INSERT 1 >

----------NOTE----------
A separate ACTION entry is allowed for each INSTRUMENT listed in Table 3.3-10.

< INSERT 2 >

or submit a Special Report pursuant to specification 6.9.2 within the following 14 days from the time the action is required. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channel(s) to operable status.

For information only. No changes proposed to this page.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	TOTAL REQUIRED NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. Containment Pressure		
a. Narrow Range	2	1
b. Wide Range	2	1
2. Reactor Coolant Hot-Leg Temperature--Wide Range	2	1
3. Reactor Coolant Cold-Leg Temperature--Wide Range	2	1
4. Reactor Coolant Pressure--Wide Range	2	1
5. Pressurizer Water Level	2	1
6. Steam Line Pressure	2/steam generator	1/steam generator
7. Steam Generator Water Level--Narrow Range	N.A.	1/steam generator
8. Steam Generator Water Level--Wide Range	N.A.	1/steam generator
9. Refueling Water Storage Tank Water Level	2	1
10. Auxiliary Feedwater Flow Rate	N.A.	1/steam generator
11. Reactor Coolant System Subcooling Margin Monitor	N.A.	1
12. PORV Position Indicator*	N.A.	1/valve
13. PORV Block Valve Position Indicator**	N.A.	1/valve
14. Pressurizer Safety Valve Position Indicator	N.A.	1/valve
15. Containment Water Level (ECCS Sump)--Narrow Range	2	1
16. Containment Water Level--Wide Range	2	1

For information only. No changes proposed to this page.

TABLE 3.3-10 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT		TOTAL REQUIRED NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
17.	In Core Thermocouples	4/core quadrant	2/core quadrant
18.	Plant Vent Stack--High Range Noble Gas Radiation Monitor	N.A.	1
19.	Main Steam Line Radiation Monitors	N.A.	1/steam line
20.	Containment--High Range Radiation Monitor	N.A.	1
21.	Reactor Vessel Level	2	1
22.	Containment Spray NaOH Tank Level	2	1
23.	Turbine Building Vent Stack High Range Noble Gas Radiation Monitor	N.A.	1
24.	Waste Processing Building Vent Stack High Range Noble Gas Radiation Monitors		
	a. Vent Stack 5	N.A.	1
	b. Vent Stack 5A	N.A.	1
25.	Condensate Storage Tank Level	2	1

*Not applicable if the associated block valve is in the closed position.
**Not applicable if the block valve is verified in the closed position and power is removed.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

~~CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.8.4.1 Each containment penetration conductor overcurrent protective device specified in the Technical Specification Equipment List Program, plant procedure PLP-106, shall be OPERABLE.~~

~~APPLICABILITY: MODES 1, 2, 3, and 4.~~

~~ACTION:~~

~~With one or more of the containment penetration conductor overcurrent protective device(s) inoperable:~~

~~a. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping the associated backup circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the backup circuit breaker to be tripped or the inoperable circuit breaker racked out or removed at least once per 7 days thereafter, or~~

~~b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

~~SURVEILLANCE REQUIREMENTS~~

~~4.8.4.1 Each containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:~~

~~a. At the frequency specified in the Surveillance Frequency Control Program:~~

~~1. By verifying that the 6900-volt circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers, and performing the following:~~

~~a) A CHANNEL CALIBRATION of the associated protective relays,~~

~~b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed, and~~

Specifications 3/4.8.4.1 and 3/4.8.4.2 have been deleted from Technical Specifications and relocated to plant procedure PLP-106.

Pages 3/4 8-20 through 3/4 8-43 have been deleted.

SURVEILLANCE REQUIREMENTS (Continued)

4.8.4.1 (Continued)

c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the long-time delay trip element and 150% of the pickup of the short-time delay trip element, and verifying that the circuit breaker operates within the time delay band width for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to ±20% of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay. Molded case circuit breaker testing shall also follow this procedure except that generally no more than two trip elements, time delay and instantaneous, will be involved. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

b. At the frequency specified in the Surveillance Frequency Control Program by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

TABLE 3.8-1 CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

This table is deleted from Technical Specifications.

The information in this table is controlled by the Technical Specification Equipment List Program, plant procedure PLP-106.

PAGES 3/4 8-22 THROUGH 3/4 8-38B HAVE BEEN DELETED.

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection of each valve, specified in the Technical Specification Equipment List Program, plant procedure PLP-106, requiring bypass protection, shall be bypassed only under accident conditions by an OPERABLE bypass device.

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not capable of being bypassed under conditions for which it is designed to be bypassed, restore the inoperable device or provide a means to bypass the thermal overload within 8 hours, or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) of the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The thermal overload protection for the above required valves shall be verified to be bypassed only under accident conditions by an OPERABLE integral bypass device by the performance of a TRIP ACTUATION DEVICE OPERATIONAL TEST of the bypass circuitry:

a. At the frequency specified in the Surveillance Frequency Control Program for those thermal overloads which are normally in force during plant operation and are bypassed only under accident conditions; and

b. Following maintenance on the thermal overload bypass relays and circuitry.

~~TABLE 3.8-2 MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION~~

~~This table is deleted from Technical Specifications.~~

~~The information in this table is controlled by the Technical Specification Equipment List Program, plant procedure PLP-106.~~

~~PAGES 3/4 8-41 THROUGH 3/4 8-43 HAVE BEEN DELETED.~~

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two Source Range Neutron Flux Monitors* shall be OPERABLE, each with continuous visual indication in the control room ~~and one with audible indication in the containment and control room~~.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both of the above required monitors inoperable or not operating, in addition to Action a. above, immediately initiate actions to restore one source range neutron flux monitor to OPERABLE status and determine the boron concentration of the Reactor Coolant System within 4 hours and once per 12 hours thereafter.

SURVEILLANCE REQUIREMENTS

4.9.2 Each neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK at the frequency specified in the Surveillance Frequency Control Program,

b. A CHANNEL CALIBRATION at the frequency specified in the Surveillance Frequency Control Program.

Replace with:
* Wide Range Neutron Flux Monitors may be substituted for Source Range Neutron Flux Monitors provided the two required OPERABLE monitors (Source Range Neutron Flux Monitors and/or Wide Range Neutron Flux Monitors) are located on opposite sides of the core.

~~*A Wide Range Neutron Flux Monitor may be substituted for one of the Source Range Neutron Flux Monitors provided the OPERABLE Source Range Neutron Flux Monitor is capable of providing audible indication in the containment and in the control room.~~

ENCLOSURE 3

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

4 PAGES PLUS THE COVER

P-14 On increasing steam generator water level, P-14 automatically trips all feedwater isolation valves and inhibits feedwater control valve modulation.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING FOR PLANT OPERATIONS

The OPERABILITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance. The radiation monitors for plant operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents and abnormal conditions. Once the required logic combination is completed, the system sends actuation signals to initiate alarms or automatic isolation action and actuation of emergency systems.

3/4.3.3.2 DELETED

3/4.3.3.3 DELETED

3/4.3.3.4 DELETED

3/4.3.3.5 REMOTE SHUTDOWN SYSTEM

The OPERABILITY of the Remote Shutdown System ensures that sufficient capability is available to permit safe shutdown of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criterion 19 of 10 CFR Part 50.

The OPERABILITY of the Remote Shutdown System ensures that a fire will not preclude achieving safe shutdown. The Remote Shutdown System instrumentation, control, and power circuits and transfer switches necessary to eliminate effects of the fire and allow operation of instrumentation, control and power circuits required to achieve and maintain a safe shutdown condition are independent of areas where a fire could damage systems normally used to shut down the reactor.

This capability is consistent with General Design Criterion 3, 10 CFR 50.48(a) and 10 CFR 50.48(c).

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, Revision 3, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," May 1983 and NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980. The RVLIS and In Core Thermocouple design meets the intent of Regulatory Guide 1.97. The HNP design (and Regulatory Guide 1.97) stipulates redundancy for RVLIS and In Core Thermocouples. A fully 100% functional channel would be available should a channel fail.

~~The RVLIS and In Core Thermocouple systems do not automatically actuate any component. These monitoring systems are used for indication only. Diverse monitoring is available for core cooling indication requirements such as Reactor Coolant Hot and Cold Leg temperature~~

~~indications as well as Reactor Coolant System pressure.~~

The thirty-day completion time for one inoperable channel ~~of RVLIS or In Core Thermocouples~~ is based on operating experience and takes into account the remaining OPERABLE channel, the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring an instrument during this interval. If the thirty-day completion time was not met, then a written report to the NRC would be required to outline the preplanned alternate method of monitoring (in this case the other redundant channel would be available), the cause of the inoperability, and plans and a schedule for restoring the instrumentation channels of the Function to operable status.

post-accident monitoring

If both channels ~~of RVLIS or In Core Thermocouples are~~ inoperable, then restore an inoperable channel within 7 days. The completion time ~~of~~ 7 days is based on the relatively low probability of an event requiring ~~RVLIS and In Core Thermocouple~~ instrumentation operation and the availability of alternate means to obtain the required information. Diverse monitoring is available for core cooling indication requirements such as Reactor Coolant Hot and Cold Leg temperature indications as well as Reactor Coolant System pressure. These parameters can be used to manually determine subcooling margin, which normally uses core exit temperatures.

Start new paragraph.

3/4.3.3.7 DELETED

3/4.3.3.8 DELETED

3/4.3.3.9 DELETED

3/4.3.3.10 DELETED

3/4.3.3.11 DELETED

3/4.3.4 DELETED

The ACTIONS of this Specification may be entered independently for each Function listed on Table 3.3-10. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the ACTION was entered for that Function.

BASES

LCOs 3.8.3.1 and 3.8.3.2 include requirements for energizing 118 VAC vital buses from the associated inverters connected to 125 VDC buses. In the event the 118 VAC vital buses are not energized by the inverters connected to the 125 VDC buses, system design provides for energizing the 118 VAC buses from the Bypass Source or the Alternate Power Supply. The Bypass Source is regulated, transfer to the source is automatic within the inverters, and operation on the Bypass Source requires entry into LCO 3.8.3.1 Action 'c' or LCO 3.8.3.2 Action, depending on the OPERATIONAL MODE. The Alternate Power Supply is unregulated and the voltage may not be sufficient to support loads as documented in calculation E-6007. Operation on the Alternate Power Supply, requires entry into LCO 3.8.3.1 Action 'b' or LCO 3.8.3.2 Action, depending on the OPERATIONAL MODE.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES - DELETED

~~Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.~~

~~The Surveillance Requirements applicable to lower voltage circuit breakers provide assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker. Each manufacturer's molded case and metal case circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of circuit breakers, it is necessary to divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes. For surveillance 4.8.4.1.a.1.c and 4.8.4.1.a.2, testing of the breakers includes a representative sample of 10% of each type of breaker as described in the table below.~~

~~Types~~
~~15 Amp(A)~~
~~30A 40A~~
~~50A~~
~~60A~~
~~70A 90A~~
~~100 110A~~
~~125 150A~~
~~225A~~

~~The bypassing of the motor-operated valves thermal overload protection during accident conditions by integral bypass devices ensures that safety-related valves will not be prevented from performing their function. The Surveillance Requirements for demonstrating the bypassing of the thermal overload protection during accident conditions are in accordance with Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.~~

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses and are specified in the cycle-specific COLR. The boron concentration limit specified in the COLR ensures that a core K_{eff} of $\leq$ 0.95 is maintained during fuel handling operations. The administrative controls over the required valves during refueling operations precludes the possibility of uncontrolled boron dilution of the filled portion of the RCS. This action prevents flow to the RCS of unborated water by closing flow paths from sources of unborated water.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors and/or Wide Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core. ~~If the audible indication is lost, then enter LCO Action 3.9.2.b.~~

3/4.9.3 DECAY TIME - DELETED

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE. Penetrations applicable to Technical Specification 3.9.4.b and 3.9.4.c may be opened provided the following administrative controls are in effect:

1. An individual or individuals shall be designated and available at all times, capable of isolating the breached penetration.

2. The breached penetrations shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses).

3. For the Personnel Air Lock, at least one door must be capable of being closed and secured. Additionally, the equipment hatch must be capable of being closed and secured. Equivalent isolation methods may also be used.

The LCO is modified by a Note allowing penetration flow paths providing direct access from the containment atmosphere to the outside atmosphere to be open under administrative controls. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, and 2) specified individuals are designated and readily available to isolate the flow path in the event of a fuel handling accident.