



**Benjamin C. Waldrep**  
Vice President  
Harris Nuclear Plant  
5413 Shearon Harris Road  
New Hill, NC 27562-9300

919.362.2502

10 CFR 50.90

May 26, 2016  
Serial: HNP-16-026

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

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

**Subject:** License Amendment Request to Modify Diesel Fuel Oil Testing Surveillance Requirements

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Duke Energy Progress, Inc. (Duke Energy), hereby requests a revision to the Technical Specifications (TS) for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP), which impacts TS Section 6.8, "Procedures and Programs," and Section 3.8, "Electrical Power Systems."

The proposed amendment adds a new Administrative Control TS to establish, implement, and maintain a Diesel Fuel Oil Testing Program for the testing of both new and stored fuel oil. The specifics of this program will reside within the HNP Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," a licensee-controlled document. HNP TS will be modified to relocate TS fuel oil sampling and testing surveillance requirements (SR) to the newly established program. The changes are consistent with Revision 4 of NUREG-1431, "Standard Technical Specifications – Westinghouse Plants" (Agency-wide Documents Access and Management System (ADAMS) Accession No. ML12100A222), and the intent of Nuclear Regulatory Commission (NRC) approved Technical Specification Task Force (TSTF) Standard Technical Specifications Change Travelers TSTF-374, "Revision to TS 5.5.13 and Associated TS Bases for Diesel Fuel Oil," Revision 0 (ADAMS Accession No. ML011340449), and TSTF-2, "Relocate the 10 Year Sediment Cleaning of the Fuel Oil Storage Tank to Licensee Control," Revision 1 (ADAMS Accession No. ML040360147). The proposed amendment also requests an exception to Revision 1 of Regulatory Guide 1.137, "Fuel Oil Systems for Standby Diesel Generators" (ADAMS Accession No. ML003740180), that will allow the offsite sampling of new fuel oil prior to its addition to the storage tanks.

The Enclosure of this License Amendment Request (LAR) provides Duke Energy's evaluation of the proposed changes. Attachment 1 provides a copy of the proposed TS changes. Attachment 2 provides a copy of the revised TS pages.

Duke Energy requests NRC review and approval of the proposed LAR by May 31, 2017. The amendment shall be implemented within 120 days following approval.

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

This letter contains no new Regulatory Commitments.

Please refer any questions regarding this submittal to John Caves, HNP Regulatory Affairs Manager, at (919) 362-2406.

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on May 26, 2016.

Sincerely,



Benjamin C. Waldrep

Enclosure: Evaluation of the Proposed Change

Attachments:

- 1: Proposed Technical Specification Changes
- 2: Revised Technical Specification Pages

cc: Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP  
Mr. W. L. Cox, III, Section Chief N.C. DHSR  
Ms. M. Barillas, NRC Project Manager, HNP  
Ms. Catherine Haney, NRC Regional Administrator, Region II

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

This letter contains no new Regulatory Commitments.

Please refer any questions regarding this submittal to John Caves, HNP Regulatory Affairs Manager, at (919) 362-2406.

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on May           , 2016.

Sincerely,

Benjamin C. Waldrep

Enclosure:    Evaluation of the Proposed Change

Attachments:

- 1: Proposed Technical Specification Changes
- 2: Revised Technical Specification Pages

cc:   Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP  
      Mr. W. L. Cox, III, Section Chief N.C. DHSR  
      Ms. M. Barillas, NRC Project Manager, HNP  
      Ms. Catherine Haney, NRC Regional Administrator, Region II

U.S. Nuclear Regulatory Commission  
Serial HNP-16-026  
Enclosure

**SERIAL HNP-16-026**

**ENCLOSURE**

**EVALUATION OF THE PROPOSED CHANGE**

**SHEARON HARRIS NUCLEAR POWER PLANT / UNIT 1**

**DOCKET NO. 50-400**

**RENEWED LICENSE NUMBER NPF-63**

## Evaluation of the Proposed Change

- 1.0 SUMMARY DESCRIPTION
- 2.0 DETAILED DESCRIPTION
- 3.0 TECHNICAL EVALUATION
- 4.0 REGULATORY ANALYSIS
  - 4.1 Applicable Regulatory Requirements/Criteria
  - 4.2 Precedent
  - 4.3 No Significant Hazards Consideration Determination
  - 4.4 Conclusions
- 5.0 ENVIRONMENTAL CONSIDERATION
- 6.0 REFERENCES

## 1.0 SUMMARY DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, Duke Energy Progress, Inc. (Duke Energy), is proposing changes to the Shearon Harris Nuclear Power Plant, Unit 1 (HNP) Technical Specifications (TS), which impact TS Section 6.8, "Procedures and Programs," and Section 3.8, "Electrical Power Systems."

The proposed amendment adds a new Administrative Control TS to establish, implement, and maintain a Diesel Fuel Oil Testing Program for the testing of both new and stored fuel oil. The specifics of this program will reside within the HNP Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," a licensee-controlled document. HNP TS will be modified to relocate TS fuel oil sampling and testing surveillance requirements (SR) to the newly established program. Along with the relocation of references to specific American Society for Testing and Materials (ASTM) standards for fuel oil testing, an alternate criteria to the "clear and bright" acceptance test for new fuel oil will be added, consistent with the intent of the Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-374, Revision 0 (Reference 1).

Additionally, the proposed amendment modifies TS by moving surveillance requirement (SR) 4.8.1.1.2.h.1 to perform a 10-year sediment cleaning of the fuel oil storage tank to licensee control. This is consistent with NRC-approved TSTF-2, Revision 1 (Reference 2).

This amendment also proposes an exception to Regulatory Guide (RG) 1.137, Revision 1 (Reference 3), to allow for the ability to perform new fuel oil sampling offsite prior to its addition to the storage tanks.

## 2.0 DETAILED DESCRIPTION

The proposed changes are associated with the establishment of a Diesel Fuel Oil Testing Program. The HNP TS do not currently contain a Diesel Fuel Oil Testing Program in the administrative TS section (Section 6.8, "Procedures and Programs"). Through the establishment of a new Administrative Control under TS 6.8.4.p, consistent with the Administrative Controls TS 5.5.13 in the improved Standard Technical Specifications (ITS) for Westinghouse Plants, NUREG-1431 (Reference 4), the proposed amendment makes conforming changes to Section 6.8 of the HNP TS to establish, implement, and maintain a Diesel Fuel Oil Testing Program for the testing of both new and stored fuel oil. The specific details of the program will exist within HNP procedure PLP-106, a licensee-controlled document. This procedure is incorporated by reference into the Final Safety Analysis Report (FSAR) and is therefore made a part of the FSAR, which in turn is a part of the HNP Current Licensing Basis. This procedure is subject to the update and reporting requirements of 10 CFR 50.71(e) and change controls of 10 CFR 50.59. As such, it cannot be exempted from 50.59 screening.

As part of the program's establishment, it is proposed to move the current prescriptive requirements of HNP SRs 4.8.1.1.2.c and 4.8.1.1.2.d to the Diesel Fuel Oil Testing Program. These SRs contain requirements for sampling and analysis of new and stored diesel fuel oil, respectively, to provide assurance that the fuel oil is of the appropriate grade and quality, such that the operability of the diesel generator is maintained. The differences between the current SRs 4.8.1.1.2.c and 4.8.1.1.2.d and the Diesel Fuel Oil Testing Program requirements are described below.

1. To be consistent with the ITS TS 5.5.13.b and other surveillances to be conducted on a monthly frequency, the 30-day requirement in SR 4.8.1.1.2.c.2 is revised to 31 days.
2. In alignment with the intent of NRC-approved TSTF-374, Revision 0, the amendment proposes the relocation of the ASTM Standard references specific to the Diesel Fuel Oil Testing Program as part of the relocation of prescriptive requirements from SRs 4.8.1.1.2.c and 4.8.1.1.2.d to a licensee-controlled document. Currently, the use of a different ASTM Standard than specified in TS or a newer edition of the ASTM Standard is not permitted without an amendment to the TS. This proposed change will provide the flexibility to maintain the capability to conduct fuel oil sampling and analysis using methodologies in accordance with the ASTM Standards whenever there are changes in Environmental Protection Agency (EPA) regulations for fuel oil or newer editions of the ASTM Standards.
3. Furthermore, as outlined in TSTF-374, Revision 0, and subsequently applied in Revision 4 of NUREG-1431 (ITS 5.5.13.a.3), the Diesel Fuel Oil Testing Program will reflect the expanded “clear and bright” test to allow a water and sediment content test to be performed in order to establish the acceptability of new fuel oil for use prior to addition to storage tanks.

With the relocation of the prescriptive requirements of SRs 4.8.1.1.2.c and 4.8.1.1.2.d to the Diesel Fuel Oil Testing Program, SR 4.8.1.1.2.c will be revised to reference the program for the testing of new and stored diesel fuel oil and SR 4.8.1.1.2.d will be deleted since SR 4.8.1.1.2.c will now apply to both new and stored fuel oil.

The current structure of the HNP TS does not readily allow for the introduction of a new TS equivalent to the ITS LCO 3.8.3 for testing diesel fuel oil. As such, additional requirements for actions to be taken should fuel oil properties exceed specified limits that are similar to Conditions C and D of ITS LCO 3.8.3 will be contained in the Diesel Fuel Oil Testing Program. These additional requirements will ensure continued operability of the emergency diesel generators (DGs) as required by TS 3.8.1.1 and 3.8.1.2, providing for the operational flexibility as permitted in ITS LCO 3.8.3. As previously mentioned, the proposed revision to SR 4.8.1.1.2.c references the Diesel Fuel Oil Testing Program. This ensures that the additional requirements must also be met to ensure continued emergency DG operability, and provides the requisite comparable controls as intended in ITS LCO 3.8.3.

This amendment proposes the relocation of SR 4.8.1.1.2.h.1, a preventative type SR for the cleaning of each fuel oil storage tank every 10 years (the equivalent of ITS SR 3.8.3.6), to the Diesel Fuel Oil Testing Program, as based on the NRC-approved TSTF-2, Revision 1, application to ITS SR 3.8.3.6.

The TS pages illustrating the proposed changes are provided in Attachment 1 (markup) and Attachment 2 (retyped).

Duke Energy also proposes an exception to the RG 1.137, Revision 1, Section C.2.b requirement of taking onsite samples of new fuel oil prior to its addition to the supply tanks. The proposed exception allows for the sampling of fuel oil to be performed at an offsite contracted lab that is on the Approved Suppliers List (ASL) to comply with the RG 1.137 requirements in accordance with the Diesel Fuel Oil Testing Program.

### 3.0 TECHNICAL EVALUATION

The operability of the Alternating Current (A.C.) power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for: (1) the safe shutdown of the facility, and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The function of the Diesel Generator Fuel Oil Storage and Transfer System (DGFOSTS) is to store, maintain, and supply fuel oil to the standby DGs as required for all modes of DG operation during normal and abnormal site and plant conditions. The system consists of two separate, independent fuel oil supply subsystems, each serving one of the two standby DG engines. Each of these redundant subsystems consists of one fuel oil storage tank, one transfer pump, one day tank, interconnecting piping valves, and associated instruments and controls. Each fuel oil storage tank is a reinforced concrete tank that has a capacity of 175,000 gallons and is located in the Diesel Fuel Oil Storage Tank Building that consists of a below grade reinforced concrete structure.

Proper operation of the standby emergency DGs is reliant upon proper quality of the fuel oil. RG 1.137 addresses the recommended fuel oil practices and supplements the American National Standards Institute, Inc. (ANSI) Standard ANSI N195-1976, "Fuel Oil Systems for Standby Diesel Generators." Surveillance of the quality of the fuel oil is accomplished by periodic sampling for water and other contaminants in the storage system and sampling of new fuel oil prior to transfer to the storage system.

#### Administrative TS 6.8.4.p, Diesel Fuel Oil Testing Program

The current structure of the HNP TS does not contain an administrative TS for governing the Diesel Fuel Oil Testing Program, but rather incorporates the diesel fuel oil test requirements as surveillance requirements in the Electrical Power System A.C. Sources TS. These requirements provide a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that could negatively impact the DG operation. Since the test will be conducted prior to addition of the new fuel to the storage tanks, any failure to meet the limit requirements allows for the rejection of the new fuel oil prior to its addition and prevention of a potential failure of the emergency DG. Tests are also performed on the new fuel oil following its addition to the storage tanks to verify that the other properties of interest, those that will not have an immediate effect on stored fuel oil or emergency DG operation, are met.

SR 4.8.1.1.2.c currently implements the required sampling of new fuel oil prior to addition to the storage tanks, in accordance with ASTM D4057-81 (Reference 5), as follows:

- 1) By verifying, in accordance with the tests specified in ASTM D975-81 [Reference 6] prior to addition to the storage tanks, that the sample has:
  - a) An API [American Petroleum Institute] Gravity of within 0.3 degrees at 60°F [Fahrenheit], or a specific gravity of within 0.0016 at 60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 26 degrees but less than or equal to 38 degrees.

- b) A kinematic viscosity at 40°C [Celsius] of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if the gravity was not determined by comparison with the supplier's certification;
  - c) A flash point equal to or greater than 125°F; and
  - d) A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82 [Reference 7].
- 2) By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 [Reference 8] or ASTM D2622-82 [Reference 9].

SR 4.8.1.1.2.d implements the continued sampling of the fuel oil storage tank to verify that the total particulate contamination is less than 10 mg/liter, in accordance with ASTM D2276-78 (Reference 10).

The addition of a new Administrative Control TS, HNP TS 6.8.4.p, is consistent with Program Section 5.5.13 of the ITS for Westinghouse Plants (NUREG-1431, Revision 1), in establishing, implementing, and maintaining a Diesel Fuel Oil Testing Program. HNP procedure PLP-106, a licensee-controlled document, will contain the specifics of the program. The proposed change relocates the current prescriptive requirements associated with the sampling and testing of the new and stored fuel oil from SR 4.8.1.1.2.c and SR 4.8.1.1.2.d to the newly established Diesel Fuel Oil Testing Program. This relocation includes the referenced ASTM Standards, consistent with the intent of NRC-approved TSTF-374. These requirements provide assurance that the fuel oil is of the appropriate grade and quality as to maintain the continued operability of the emergency DG. Currently, the use of a different ASTM Standard than specified in TS or a newer edition of the ASTM Standard is not permitted without an amendment to the TS. This proposed change will provide the flexibility to maintain the capability to conduct fuel oil sampling and analysis using methodologies in accordance with the ASTM Standards whenever there are changes in EPA regulations for fuel oil or newer editions of the ASTM Standards.

With the proposed relocation of the prescriptive requirements described above, SR 4.8.1.1.2.c is revised to reference the Diesel Fuel Oil Testing Program for the testing and verification of new and stored fuel oil properties as to demonstrate the operability of the DG(s). As a result of the revised SR 4.8.1.1.2.c encompassing both new and stored fuel oil, SR 4.8.1.1.2.d may be deleted. As part of the Diesel Fuel Oil Testing Program, the prescriptive requirements become technical requirements of which changes are performed in accordance with the provisions of 10 CFR 50.59. Thus, adequate controls exist to allow the relocation of the prescriptive requirements above, including specific ASTM Standard references, to a licensee-controlled document. The ability to demonstrate DG operability is maintained.

The Diesel Fuel Oil Testing Program will also contain some prescriptive requirements that have been revised from those currently contained in SR 4.8.1.1.2.c and 4.8.1.1.2.d to be consistent with the programmatic ITS TS 5.5.13 (NUREG-1431, Revision 4), as identified below.

1. As consistent with ITS TS 5.5.13.b, the 30-day requirement in SR 4.8.1.1.2.c.2 to verify the remaining properties of the new fuel oil sample taken prior to addition to the storage tank will be revised to 31 days. This provides alignment with other surveillances that are required to be performed at a "monthly" frequency and is considered an administrative change. The addition of one day to the frequency of performance is insignificant and does not involve any technical modifications to existing requirements.

2. As consistent with ITS TS 5.5.13.a.3 and TSTF-374, Revision 0, the “clear and bright” test of SR 4.8.1.1.2.c.1.d is expanded to allow a water and sediment content test to be performed to establish the acceptability of the new fuel oil. Per TSTF-374, the “clear and bright” test is a qualitative test for determining free water and particulate contamination in distillate fuels and is, therefore, subject to human interpretation. Conversely, the water and sediment content test is a quantitative test using centrifuge methods. New fuel oil at HNP is tested in accordance with ASTM D975-81, which identifies ASTM D1796, “Standard Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure),” as an acceptable standard for the water and sediment content test. The use of ASTM D1796-83 (Reference 11) was endorsed by the NRC in Amendment No. 101 for the Wolf Creek Generating Station, dated August 9, 1996 (ML022040294). As an accepted standard to verify the acceptability of new fuel oil for use prior to addition to the storage tanks, the use of the quantitative methods of ASTM D1796 in lieu of ASTM D4176 does not introduce a different method that requires further evaluation prior to implementation.
3. A statement regarding the applicability of HNP SR 4.0.2 and 4.0.3 to the Diesel Fuel Oil Testing Program will be included. The allowances provided by these general SRs are applicable to the current SRs being relocated to the program, SR 4.8.1.1.2.c and 4.8.1.1.2.d, and therefore applicable to the identified program.

The current structure of the HNP TS does not readily allow for the introduction of a new TS equivalent to the ITS LCO 3.8.3 for testing diesel fuel oil. As such, additional requirements for actions to be taken, should fuel oil properties exceed specified limits that are similar to Conditions C and D of ITS LCO 3.8.3, will be contained in the Diesel Fuel Oil Testing Program. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between surveillance frequency intervals, it is prudent to allow a brief period prior to declaring the associated DG inoperable. A 7-day completion time, consistent with Condition C of ITS LCO 3.8.3, allows for further evaluation, re-sampling and re-analysis of the DG fuel oil. In the event that new fuel oil is determined to not meet the required limits following its addition to the previously stored fuel, a period of 30 days is allowed for restoring the stored fuel oil properties, consistent with Condition D of ITS LCO 3.8.3. This provides sufficient time to test the stored fuel oil to determine whether the mixture of the new and stored fuel oil remains acceptable or to restore the stored fuel oil properties. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the DG would still be capable of performing its intended function. These additional requirements will ensure continued operability of the emergency DGs as required by TS 3.8.1.1 and 3.8.1.2, providing for the operational flexibility as permitted in ITS LCO 3.8.3. As previously mentioned, the proposed revision to SR 4.8.1.1.2.c references the Diesel Fuel Oil Testing Program. This ensures that the additional requirements must also be met for continued emergency DG operability, and provides the requisite comparable controls as intended in ITS LCO 3.8.3.

The proposed TS changes will continue to ensure the quality of both new and stored diesel fuel oil. As such, the operability of the DGs is maintained.

#### Relocation of SR 4.8.1.1.2.h.1

The NRC’s requirements related to the content of the TS are set forth in 10 CFR 50.36. In particular, 10 CFR 50.36(c)(3) states that surveillance requirements are “requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and

components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.”

HNP SR 4.8.1.1.2.h.1 is a preventative maintenance activity that encompasses the draining, sediment removal, and cleaning of each main fuel oil storage tank at least once per 10 years. It is not related to the testing, calibration, or inspection of the DGFOSTS to assure that necessary quality is maintained as required by 10 CFR 50.36(c)(3) for surveillance requirements. As addressed in Revision 1 of TSTF-2, the ITS equivalent, SR 3.8.3.6, is similarly identified as a preventative type SR, of which the majority have been relocated from the TS and allowed to be under licensee control.

Operability of the DG and its associated fuel oil system are assured by other TS SRs, which remain unchanged. Fuel oil will continue to be maintained within the acceptable quantity and quality limits with the relocation of SR 4.8.1.1.2.h.1. The performance of fuel oil testing per SR 4.8.1.1.2.c and the limits of the proposed Diesel Fuel Oil Testing Program help ensure tank sediment is minimized. Fuel oil volume verification, as performed per SR 4.8.1.1.2.a at least once per 31 days, ensures that any degradation of the tank wall surface that results in a fuel oil volume reduction is detected and corrected in a timely manner. It is on this basis that the ITS SR 3.8.3.6 was removed from the ITS NUREGs by the NRC-approved TSTF-2.

The TS SR is based on Section C.2.f of RG 1.137, Revision 1, which stipulates the removal of the fuel oil stored in the tanks, the accumulated sediment removal, and the cleaning of the tank at 10-year intervals. Section 1.8 of the HNP Final Safety Analysis Report (FSAR) discusses HNP's compliance with RG 1.137. Once the SR is removed from the TS, the cleaning requirement for the fuel oil storage tanks will be governed by the HNP commitment to RG 1.137, Revision 1, and performed as outlined in the Diesel Fuel Oil Testing Program proposed by this amendment request, of which any changes require review in accordance with 10 CFR 50.59.

The proposed TS change will continue to ensure the quality of both new and stored diesel fuel oil. As such, the operability of the DGs is maintained.

#### Exception to RG 1.137

Section C.2.b. of RG 1.137 states: “Prior to adding new fuel oil to the supply tanks, onsite samples of the fuel oil should be taken. As a minimum, prior to the addition of new fuel, tests for the following properties should be conducted: (1) Specific or API gravity, (2) Water and sediment, (3) Viscosity.” HNP will continue to meet the intent of this section of the RG by ensuring the new fuel oil is in accordance with the required parameters of the RG prior to offload from the tanker truck. HNP is proposing an exception to the onsite sampling requirement of RG 1.137 to allow for the sampling of the new fuel oil offsite. This exception provides for the sampling of the new fuel oil to occur following its loading into the tanker truck and prior to its offloading at HNP. Once the sample is taken, the truck will be sealed and the new fuel oil will be delivered to the site. The seals on the truck will be inspected against a Certificate of Analysis from the approved testing laboratory and the fuel oil properties will be verified to meet the required specifications. Upon verification, the new fuel oil will then be added to the fuel oil storage tanks. Controls on truck cleanliness and contamination provide assurance that the chemical compositions of the fuel oil remain valid over the period of time the fuel oil is in transit to HNP.

The sample will continue to come from the tanker truck prior to offload and will be tested for the required properties; however, the physical location where the sampling occurs will not be restricted to onsite. The proposed exception continues to meet the intent of RG 1.137 to assure adequate fuel oil quality for standby DGs.

#### 4.0 REGULATORY ANALYSIS

##### 4.1 Applicable Regulatory Requirements/Criteria

Under 10 CFR 50.36(c)(3), surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. SR 4.8.1.1.2.h.1 is a preventative type of SR involving the sediment cleaning of the fuel oil storage tank and is not a necessary surveillance to demonstrate operability of the DGs. It does not meet the criteria in 10 CFR 50.36 for retention in the Technical Specifications.

Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50), Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criteria (GDC) 17, "Electric power systems," requires that an onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. It also includes requirements concerning system capacity, capability, independence, redundancy, availability, testability, and reliability. With the proposed changes, fuel oil will continue to be tested in accordance with the appropriate testing methods and intervals. The proposed changes to the HNP TS do not reduce HNP's conformance with GDC 17.

The HNP fuel oil practices are based on Revision 1 of Regulatory Guide (RG) 1.137, "Fuel Oil Systems for Standby Diesel Generators," and Appendix B of ANSI N195-1976, "Fuel Oil Systems for Standby Diesel Generators," with exceptions as noted in Section 1.8 of the HNP FSAR. The proposed changes will result in the ability to use more recently developed and approved standards and methods than those referenced in the RG or the ANSI standard following a review in accordance with 10 CFR 50.59. An exception is requested to Section C.2.b of RG 1.137 to allow for the additional provision of sampling new fuel oil offsite rather than strictly onsite. This exception has no impact on assuring proper quality of fuel oil and will not impede HNP's ability to continue meeting the intent of Regulatory Guide 1.137.

##### 4.2 Precedent

The proposed changes that encompass the intent of TSTF-2 and TSTF-374 are consistent with the ITS for Westinghouse plants, NUREG-1431, as they pertain to diesel fuel oil testing. The changes associated with TSTF-374 were described in a Notice of Availability for Consolidated Line Item Improvement Process published in the Federal Register on April 21, 2006 (71 FR 20735). By letters dated June 27, 2000 (Agency-wide Documents Access and Management System (ADAMS) Accession No. ML003726879), and July 30, 2008 (ADAMS Accession No. ML081990457), the NRC issued amendments respectively to Seabrook Station, Unit No. 1, and to Waterford Steam Electric Station, Unit 3, to relocate the quality requirements associated with the emergency DG fuel oil within their custom TS through creation of a new Diesel Fuel Oil Testing Program. The amendments also included the deletion of the surveillance requirements associated with the periodic draining, cleaning and visual inspection of the fuel oil storage tanks.

#### 4.3 No Significant Hazards Consideration Determination

Pursuant to 10 CFR 50.90, Duke Energy Progress, Inc. (Duke Energy), proposes a license amendment request (LAR) for the Technical Specifications (TS). Specifically, it institutes a new administrative program TS for the establishment, implementation, and maintenance of a Diesel Fuel Oil Testing Program, the specifics of which will be contained in the licensee-controlled Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report." It also relocates the current TS surveillance requirements (SR) for evaluating diesel fuel oil to this program, along with the SR for the draining, sediment removal, and cleaning of each main fuel oil storage tank at least once every 10 years. In addition, an exception is proposed to Regulatory Guide (RG) 1.137, Revision 1, for the allowance of performing sampling of new fuel oil offsite prior to its addition to the fuel oil storage tanks.

Duke Energy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below.

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

Response: No.

The proposed amendment institutes a new administrative program TS for the establishment, implementation, and maintenance of a Diesel Fuel Oil Testing Program. The specifics of this program will be contained in a licensee-controlled document. The current TS SR for evaluating new and stored diesel fuel oil and the cleaning of the fuel oil storage tanks will be relocated to this program. The American Society for Testing and Materials (ASTM) standard references pertaining to new and stored fuel oil will be relocated to the aforementioned program; however, requirements to perform testing in accordance with applicable ASTM standards are retained in the TS. Requirements to perform surveillances of both new and stored diesel fuel oil are also retained in the TS. Evaluations of future changes to the licensee-controlled document will be conducted pursuant to the requirements of 10 CFR 50.59. A more rigorous testing of water and sediment content is added to the "clear and bright" test used to establish the acceptability of new fuel oil for use prior to its addition to the fuel oil storage tanks. Additionally, an exception to RG 1.137 is proposed to allow for the performance of new fuel oil sampling offsite. These changes will not affect nor degrade the ability of the emergency diesel generators (DGs) to perform their specified safety functions as the diesel fuel oil continues to be properly evaluated.

The proposed changes do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, and configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes do not alter or prevent the ability of structures, systems or components from performing their intended function to mitigate the consequences on an initiating event with the assumed acceptance limits. The proposed changes do not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types and amounts of radioactive effluent that may be released offsite,

nor significantly increase individual or cumulative occupational or public radiation exposure.

Therefore, the proposed changes do not involve a 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 previously evaluated?

Response: No.

The proposed amendment institutes a new administrative program TS for the establishment, implementation, and maintenance of a Diesel Fuel Oil Testing Program, of which the current TS SR for evaluating new and stored diesel fuel oil and the cleaning of the fuel oil storage tanks are relocated, including pertinent ASTM standard references. A more rigorous testing of water and sediment content is added to the “clear and bright” test used to establish the acceptability of new fuel oil for use prior to its addition to the fuel oil storage tanks. Additionally, an exception to RG 1.137 is proposed to allow for the performance of new fuel oil sampling offsite. These changes do not alter the way any structure, system, or component functions and does not modify the manner in which the plant is operated. The requirements retained in the TS continue to require testing of the diesel fuel oil to ensure the proper functioning of the DGs.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment institutes a new administrative program TS for the establishment, implementation, and maintenance of a Diesel Fuel Oil Testing Program, the specifics of which will be contained in a licensee-controlled document. The current TS SR for evaluating new and stored diesel fuel oil and the cleaning of the fuel oil storage tanks will be relocated to this program, along with the pertinent ASTM standard references. Changes to the licensee-controlled document are performed in accordance with the provisions of 10 CFR 50.59, thereby providing an effective level of regulatory control and ensures that diesel fuel oil testing is conducted such that there is no significant reduction in a margin of safety.

A more rigorous testing of water and sediment content is added to the “clear and bright” test used to establish the acceptability of new fuel oil for use prior to its addition to the fuel oil storage tanks. Additionally, an exception to RG 1.137 is proposed to allow for the performance of new fuel oil sampling offsite. The margin of safety provided by the DGs is unaffected by the proposed changes since there continue to be TS requirements to ensure fuel oil is of the appropriate quality and reliability for emergency DG use. The proposed changes provide the flexibility needed to improve fuel oil sampling and analysis methodologies, while maintaining sufficient controls to preserve the current margins of safety.

Based on the above, Duke Energy concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92, 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 EVALUATION

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 in 10 CFR Part 20, and 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 effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the 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 need be prepared in connection with the proposed change.

#### 6.0 REFERENCES

1. Technical Specification Task Force Improved Technical Specification Change Traveler, TSTF-374, Revision 0, "Revision to TS 5.5.13 and Associated TS Bases for Diesel Fuel Oil," (ADAMS Accession No. ML011340449)
2. Technical Specification Task Force Improved Technical Specification Change Traveler, TSTF-2-A, Revision 1, "Relocate the 10 Year Sediment Cleaning of the Fuel Oil Storage Tank to Licensee Control," (ADAMS Accession No. ML040360147)
3. Regulatory Guide 1.137, "Fuel Oil Systems for Emergency Power Supplies," Revision 1, dated October 1979, (ADAMS Accession No. ML003740180)
4. NUREG- 1431, "Standard Technical Specifications – Westinghouse Plants," Revision 4, dated March 2012, (ADAMS Accession No. ML12100A222)
5. ASTM D4057-81, "Standard Practice for Manual Sampling of Petroleum and Petroleum Products"
6. ASTM D975-81, "Standard Specification for Diesel Fuel Oils"
7. ASTM D4176-82, "Test Method for Free Water and Particulate Contamination in Distillate Fuels"
8. ASTM D1552-79, "Test Method for Sulfur in Petroleum Products (High Temperature Method)"
9. ASTM D2622-82, "Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)"
10. ASTM D2276-78, "Standard Test Methods for Particulate Contaminant in Aviation Turbine Fuels"

11. ASTM D1796-83, "Standard Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)"

U.S. Nuclear Regulatory Commission  
Serial HNP-16-026  
Attachment 1

**SERIAL HNP-16-026**

**ATTACHMENT 1**

**PROPOSED TECHNICAL SPECIFICATION CHANGES**

**SHEARON HARRIS NUCLEAR POWER PLANT / UNIT 1**

**DOCKET NO. 50-400**

**RENEWED LICENSE NUMBER NPF-63**

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### OPERATING

#### SURVEILLANCE REQUIREMENTS (CONTINUED)

##### 4.8.1.1.2 (Continued)

- b. Check for and remove accumulated water:
1. From the day tank, at least once per 31 days and after each operation of the diesel where the period of operation was greater than 1 hour, and
  2. From the main fuel oil storage tank, at least once per 31 days.
- c. ~~By sampling new fuel oil in accordance with ASTM D4057-81 prior to addition to storage tanks and:~~
1. ~~By verifying, in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks, that the sample has:~~
    - a) ~~An API Gravity of within 0.3 degrees at 60°F, or a specific gravity of within 0.0016 at 60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 26 degrees but less than or equal to 38 degrees.~~
    - b) ~~A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if the gravity was not determined by comparison with the supplier's certification;~~
    - c) ~~A flash point equal to or greater than 125°F; and~~
    - d) ~~A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82.~~
  2. ~~By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.~~
- d. ~~At least once every 31 days by obtaining a sample of fuel oil from the storage tank, in accordance with ASTM D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A.~~
- e. At least once per 184 days, on a STAGGERED TEST BASIS, the diesel generators shall be started\*\* and accelerated to at least 450 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds after the start signal.

ADD:

"By verifying fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program, at frequencies in accordance with the Diesel Fuel Oil Testing Program."

ADD:  
"DELETED."

---

\*\* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (CONTINUED)

---

4.8.1.1.2 (Continued)

- 13. During shutdown, verifying that all diesel generator trips, except engine overspeed, loss of generator potential transformer circuits, generator differential, and emergency bus differential are automatically bypassed on a simulated or actual loss of offsite power signal in conjunction with a safety injection signal.
- 14. During shutdown, verifying that within 5 minutes of shutting down the EDG, after the EDG has operated for at least 2 hours at an indicated load of 6200-6400 kw, the EDG starts and accelerates to  $6900 \pm 690$  volts and  $60 \pm 1.2$  hz in 10 seconds or less.
- g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting\*\* both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 450 rpm in less than or equal to 10 seconds.
- h. At least once per 10 years by:
  - 1) ~~Draining each main fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or other appropriate cleaning solution, and~~
  - 2) Performing a pressure test, of those isolable portions of the diesel fuel oil piping system designed to Section III, subsection ND of the ASME Code, at a test pressure equal to 110% of the system design pressure.

ADD:  
"DELETED."

---

\*\* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

PROCEDURES AND PROGRAMS (Continued)

o. CONTROL ROOM ENVELOPE HABITABILITY PROGRAM

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration System (CREFS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposure in excess of 5 rem TEDE. or its equivalent, for the duration of the accident. The program shall include the following elements:

1. The definition of the CRE and the CRE boundary.
2. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.
3. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified In Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.
4. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the CREFS, operating at the flow rate required by SR 4.7.6.d.1, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the assessment of the CRE boundary required by paragraph 3, requirement (ii).
5. The quantitative limits on unfiltered air leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph 3. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed In the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
6. The provisions of Surveillance Requirement 4.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage. and measuring CRE pressure and assessing the CRE boundary as required by paragraphs 3 and 4, respectively.

<INSERT> 

<INSERT>

p. Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

1. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
  - a. An API gravity or an absolute specific gravity within limits,
  - b. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and
  - c. A clear and bright appearance with proper color or a water and sediment content within limits.
2. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in 1., above, are within limits for ASTM 2D fuel oil, and
3. Total particulate concentration of the fuel oil is  $\leq 10$  mg/l when tested every 31 days.

The provisions of Surveillance Requirement 4.0.2 and Surveillance Requirement 4.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

U.S. Nuclear Regulatory Commission  
Serial HNP-16-026  
Attachment 2

**SERIAL HNP-16-026**

**ATTACHMENT 2**

**REVISED TECHNICAL SPECIFICATION PAGES**

**SHEARON HARRIS NUCLEAR POWER PLANT / UNIT 1**

**DOCKET NO. 50-400**

**RENEWED LICENSE NUMBER NPF-63**

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### OPERATING

#### SURVEILLANCE REQUIREMENTS (CONTINUED)

---

##### 4.8.1.1.2 (Continued)

- b. Check for and remove accumulated water:
  - 1. From the day tank, at least once per 31 days and after each operation of the diesel where the period of operation was greater than 1 hour, and
  - 2. From the main fuel oil storage tank, at least once per 31 days.
- c. By verifying fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program, at frequencies in accordance with the Diesel Fuel Oil Testing Program.
- d. DELETED.
- e. At least once per 184 days, on a STAGGERED TEST BASIS, the diesel generators shall be started\*\* and accelerated to at least 450 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be  $6900 \pm 690$  volts and  $60 \pm 1.2$  Hz in less than or equal to 10 seconds after the start signal.

---

\*\* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelude and warmup procedures, and as applicable regarding loading recommendations.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (CONTINUED)

---

4.8.1.1.2 (Continued)

13. During shutdown, verifying that all diesel generator trips, except engine overspeed, loss of generator potential transformer circuits, generator differential, and emergency bus differential are automatically bypassed on a simulated or actual loss of offsite power signal in conjunction with a safety injection signal.
14. During shutdown, verifying that within 5 minutes of shutting down the EDG, after the EDG has operated for at least 2 hours at an indicated load of 6200-6400 kw, the EDG starts and accelerates to  $6900 \pm 690$  volts and  $60 \pm 1.2$  hz in 10 seconds or less.
- g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting\*\* both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 450 rpm in less than or equal to 10 seconds.
- h. At least once per 10 years by:
  - 1) DELETED.
  - 2) Performing a pressure test, of those isolable portions of the diesel fuel oil piping system designed to Section III, subsection ND of the ASME Code, at a test pressure equal to 110% of the system design pressure.

---

\*\* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

PROCEDURES AND PROGRAMS (Continued)

p. DIESEL FUEL OIL TESTING PROGRAM

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

1. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
  - a. An API gravity of an absolute specific gravity within limits,
  - b. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and
  - c. A clear and bright appearance with proper color or a water and sediment content within limits.
2. Within 31 days of following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in 1., above, are within limits for ASTM 2D fuel oil, and
3. Total particulate concentration of the fuel oil is  $\leq 10$  mg/l when tested every 31 days.

The provisions of Surveillance Requirement 4.0.2 and Surveillance Requirement 4.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.