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10 CFR 50.90

December 19, 2016
Serial: HNP-16-116

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: Response to Request for Additional Information Regarding License Amendment Request to Modify Diesel Fuel Oil Testing Surveillance Requirements

Ladies and Gentlemen:

By letter dated May 26, 2016 (Agencywide Documents Access and Management System Accession No. ML16151A001), Duke Energy Progress, LLC (Duke Energy), submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed license amendment requested to add a new Administrative Control Technical Specification (TS) to establish, implement, and maintain a Diesel Fuel Oil Testing Program for the testing of new and stored fuel oil. It also requested a TS modification to move the surveillance requirement to perform a 10-year sediment cleaning of the fuel oil storage tank to a licensee-controlled document. In addition, Duke Energy is also requesting an exception to Regulatory Guide 1.137, Revision 1, "Fuel Oil Systems for Standby Diesel Generators" (ADAMS Accession No. ML003740180), to allow for the ability to perform new fuel oil sampling offsite prior to its addition to the storage tanks.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the LAR and determined that additional information is needed to complete their review. Duke Energy received the draft request for additional information (RAI) from the NRC through electronic mail on November 18, 2016 (final issued December 6, 2016, ADAMS Accession No. ML16355A046). Response to this request is required by December 19, 2016.

Attachment 1 provides Duke Energy's responses to the RAI questions. The proposed TS changes and revised pages provided in the Duke Energy letter dated May 26, 2016, were updated in Attachment 2 and Attachment 3, respectively, as described in Attachment 1.

This additional information does not change the No Significant Hazards Determination provided in the original submittal. No regulatory commitments are contained in this letter.

In accordance with 10 CFR 50.91(b), HNP is providing the state of North Carolina with a copy of this response.

Should you have any questions regarding this submittal, please contact Jeffery Robertson, Manager – Regulatory Affairs, at (919) 362-3137.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 19, 2016.

Sincerely,

Tanya M. Hamilton

Tanya M. Hamilton

Attachments:

1. Response to Request for Additional Information
2. Proposed Technical Specification Changes
3. Revised Technical Specification Pages

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

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SERIAL HNP-16-116

ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

By letter dated May 26, 2016 (Agencywide Documents Access and Management System Accession No. ML16151A001), Duke Energy Progress, LLC (Duke Energy), submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed license amendment requested to add a new Administrative Control Technical Specification (TS) to establish, implement, and maintain a Diesel Fuel Oil Testing Program for the testing of new and stored fuel oil. It also requested a TS modification to move the surveillance requirement to perform a 10-year sediment cleaning of the fuel oil storage tank to a licensee-controlled document. In addition, Duke Energy is also requesting an exception to Regulatory Guide 1.137, Revision 1, "Fuel Oil Systems for Standby Diesel Generators" (ADAMS Accession No. ML003740180), to allow for the ability to perform new fuel oil sampling offsite prior to its addition to the storage tanks.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the LAR and determined that additional information is needed to complete their review. Duke Energy received the draft request for additional information (RAI) from the NRC through electronic mail on November 18, 2016 (final issued December 6, 2016, ADAMS Accession No. ML16355A046). Response to this request is required by December 19, 2016. Duke Energy's response is provided below, followed by additional proposed changes that were not a result of the RAI, but rather identified following the submittal of the May 26, 2016, letter.

NRC Request

1. Title 10 of the Code of Federal Regulations, Part 50, Appendix A, General Design Criterion (GDC) 17, "Electric power systems," states, in part, 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. GDC-17 also requires that the onsite electric power supplies shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure. The safety function for each redundant system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

   RG 1.137, states in part:

   > 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 [American Petroleum Institute] gravity
   >
   > (2) Water and sediment
   >
   > (3) Viscosity
   >
   > Test results for the latter two tests should not exceed the limits specified in the applicable specification. Analysis of the other properties of the fuel oil listed in the applicable specification should be completed within 2 weeks of the addition.

HNP Final Safety Analysis Report, Section 9.5.4.6, Diesel Fuel Distribution Sources, lists the following fuel oil suppliers:

Selma, NC	45 miles
Greensboro, NC (Primary)	75 miles
Charlotte, NC	140 miles
Spartanburg, SC	200 miles
Wilmington, NC	120 miles

A. The licensee is requesting an exception to the onsite sampling requirement in RG 1.137 to allow for the sampling of the new fuel oil offsite. Describe in detail how testing will be adequately controlled at a fuel oil supplier location to continue to meet RG 1.137 and assure adequate fuel oil quality. Address if there will be a procedure in place that will state the maximum time interval between the proposed sampling of fuel offsite and the offloading of the fuel into the plant storage tanks. Also, describe the controls in place to prevent thermal cycling of the fuel in the tanker during the time interval above which may accelerate biological growth, fuel degradation, and/or condensation of water inside the tanker.

Duke Energy Response to RAI 1.A:

For the requested exception, testing itself would not be conducted at the fuel supplier location, but rather at a contracted laboratory on the Approved Suppliers List (ASL). The current practice of taking the sample from the loaded tanker truck would remain the same. The only difference is that the sample would be taken at a contracted laboratory rather than onsite. In doing so, the time interval between the proposed sampling and offloading of the fuel would be less than or equal to the current process since the tanker would be in route to the site while the testing of the fuel oil sample is being conducted at the lab. In addition, there have not been any instances of the fuel oil being rejected due to not meeting the pre-offload quality requirements within at least the past three years. Therefore, no additional procedures or controls are required outside of those under the current process. The proposed process is as follows:

- Tanker is loaded at the fuel oil supplier location and connections are sealed.
- Tanker drives to contracted laboratory.
- Fuel oil sample is taken from tanker and connection is resealed.
- Tanker drives to site while sample analysis is underway.
- Results of sample analysis are sent to site.
- Inspection of sample results and seals determines whether tanker is accepted and offloaded or rejected.

NRC Request

B. Describe the controls in place that will provide assurance that all connections to the tanker truck are sealed including any vents, drains, and sample points, for the truck bays in question. If tampering of the fuel oil were to occur, describe the controls in place to detect tampering so that the truck would be rejected. Specifically address the controls in place to prevent:

- contamination of the fuel occurred in the tanker due to aging,
- sediment in the tanker,
- condensation of water,

and to assure that GDC 17 will continue to be met and the Emergency Diesel Generators will continue to meet their mission time.

Duke Energy Response to RAI 1.B:

Duke Energy requires receipt inspection of the tanker truck to verify that all connections are sealed and that tampering has not taken place. The trucking company applies seals to all tanker ports upon loading and faxes a trucking seal sheet to the site. Duke Energy validates traceability of the fuel oil by comparing the trucking seals versus the trucking seal sheet. The seal broken by the contracted laboratory to take the fuel oil sample for analysis is replaced at the time of sampling by the laboratory. This seal is also verified by Duke Energy personnel to be intact and performing its intended function prior to accepting the fuel oil.

As per the proposed Administrative Control Technical Specification for the Diesel Fuel Oil Testing Program in Attachments 1 and 2 of the May 26, 2016, letter, acceptability of new fuel oil for use prior to addition to storage tanks is established 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. As outlined in the response to RAI 1.A above, the fuel oil will continue to be tested in accordance with the appropriate testing methods and intervals. The combined verification of the tanker seals and fuel oil quality assures that GDC 17 will continue to be met and the Emergency Diesel Generators will continue to meet their mission time.

Additional Proposed Changes:

Since the original submittal, Duke Energy has conducted an extent of condition on HNP LAR submittals currently with the U.S. Nuclear Regulatory Commission (NRC) following identification of administrative issues in proposed TS changes and revised TS pages of other submittals. A comparison was made of each text character of the impacted TS pages for this LAR to the NRC-approved TS pages (ADAMS Accession No. ML052860283). The following editorial issues were identified:

- Page 6-19i: In Attachment 1 of the May 26, 2016, letter, there were two instances where a comma was inadvertently replaced with a period. In three instances, a lower-case “i” was turned into a lower-case “l”. This page itself is not part of the revised TS pages since a new page, 6-19j, was added for the Surveillance Frequency Control Program in Amendment No. 154 of the operating license (ADAMS Accession No. ML16200A285). Correction of these inconsistencies will be reflected in the deletion of this page from Attachment 2 of this submittal.
- Page 6-19j: Item 1.a. under the Diesel Fuel Oil Testing Program stated, “An API gravity of an absolute specific gravity within limits,” per Attachment 2 of the May 26, 2016, letter. This supplement provides the corrected wording, “An API gravity or an absolute specific gravity within limits,” as consistent with Revision 4 of NUREG-1431, “Standard Technical Specifications – Westinghouse Plants” (ADAMS Accession No. ML12100A222). Also

consistent with NUREG-1431, the extraneous "of" is removed from "Within 31 days of following…" in Item 2. With the recent issuance of Amendment No. 154 to the operating license, the Diesel Fuel Oil Testing Program has been updated to Administrative Control TS 6.8.4.q instead of TS 6.8.4.p.

In order to avoid any other inadvertent editorial issues propagating forward, all proposed TS changes for this LAR have been resubmitted as Attachment 2 of this submittal utilizing the NRC-approved TS pages, as updated through Amendment No. 154. The issues impacting the revised TS pages have been corrected in the updated Attachment 3 of this submittal. Both attachments should supersede those previously provided in the May 26, 2016, letter.

There are no changes to the information provided in the No Significant Hazards Consideration Determination within the LAR submitted on May 26, 2016. As such, the conclusion of the original No Significant Hazards Consideration Determination remains applicable.

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ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION CHANGES

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

SURVEILLANCE REQUIREMENTS (CONTINUED)

4.8.1.1.2 (Continued)

b. Check for and remove accumulated water:

1. From the day tank, at the frequency specified in the Surveillance Frequency Control Program 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 the frequency specified in the Surveillance Frequency Control Program .

c. ~~By sampling new fuel oil in accordance with ASTM-D4057-81 prior to addition to storage tanks and:~~

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."

~~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 the frequency specified in the Surveillance Frequency Control Program 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.~~

ADD:
"DELETED."

e. At the frequency specified in the Surveillance Frequency Control Program, 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.

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

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 ± 690 volts and 60 ± 1.2 hz in 10 seconds or less.

g. At the frequency specified in the Surveillance Frequency Control Program 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 the frequency specified in the Surveillance Frequency Control Program 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~~

ADD: "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. Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 4.0.2 and 4.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

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q. 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 ≤ 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.

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ATTACHMENT 3

REVISED TECHNICAL SPECIFICATION PAGES

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

SURVEILLANCE REQUIREMENTS (CONTINUED)

4.8.1.1.2 (Continued)

b. Check for and remove accumulated water:

1. From the day tank, at the frequency specified in the Surveillance Frequency Control Program 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 the frequency specified in the Surveillance Frequency Control Program .

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 the frequency specified in the Surveillance Frequency Control Program, 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.

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

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 ± 690 volts and 60 ± 1.2 hz in 10 seconds or less.

g. At the frequency specified in the Surveillance Frequency Control Program 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 the frequency specified in the Surveillance Frequency Control Program 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)

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   b. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and
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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 ≤ 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.