

September 27, 1990

Docket No. 50-440

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Mr. Michael D. Lyster, Vice President  
Nuclear - Perry  
The Cleveland Electric Illuminating  
Company  
10 Center Road  
Perry, Ohio 44081

Dear Mr. Lyster:

SUBJECT: AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. NPF-58  
(TAC NO. 76392)

The Commission has issued the enclosed Amendment No. 34 to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant, Unit No. 1. This amendment revises the Technical Specifications in response to your application dated March 21, 1990.

This amendment revises Technical Specification Section 3/4.8.1, "AC Sources," by allowing the use of a different type of fuel oil for the emergency diesel generators, and modifies the relevant limiting conditions for operation and surveillance requirements for the fuel oil.

A copy of the Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

original signed by

James R. Hall, Project Manager  
Project Directorate III-3  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 34 to License No. NPF-58
2. Safety Evaluation

cc w/enclosures:  
See next page

00070

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Surname: PKreutzer  
Date: 9/20/90

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JRHall: JRH  
Date: 9/20/90

PD/PDIII-3  
JHannon  
Date: 9/20/90

OGC-WF1  
Date: 9/20/90

*Handwritten initials and signatures*  
CP-1

Mr. Michael D. Lyster  
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Perry Nuclear Power Plant  
Unit 1

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL.

DOCKET NO. 50-440

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 34  
License No. NPF-58

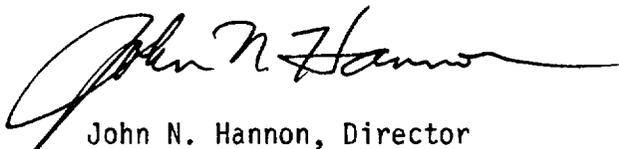
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by The Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company, and Toledo Edison Company (the licensees) dated March 21, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 34 are hereby incorporated into this license. The Cleveland Electric Illuminating Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John N. Hannon, Director  
Project Directorate III-3  
Division of Reactor Projects - III,  
IV, V and Special Projects  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 27, 1990

## ELECTRICAL POWER SYSTEMS

### 3/4.8.2 D.C. SOURCES

#### D.C. SOURCES - OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

- a. Division 1, consisting of:
  1. 125 volt battery 1R42-S002 or 2R42-S002.
  2. 125 volt full capacity charger 1R42-S006 or 0R42-S007.
- b. Division 2, consisting of:
  1. 125 volt battery 1R42-S003 or 2R42-S003.
  2. 125 volt full capacity charger 1R42-S008 or 0R42-S009.
- c. Division 3, consisting of:
  1. 125 volt battery 1E22-S005 or 2E22-S005.
  2. 125 volt full capacity charger 1E22-S006 or 0R42-S011.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

#### ACTION:

- a. With the Unit 1 and Unit 2 Division 1 batteries and/or both chargers of the above required Division 1 D.C. electrical power sources inoperable, restore an inoperable Division 1 battery and charger to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With the Unit 1 and Unit 2 Division 2 batteries and/or both chargers of the above required Division 2 D.C. electrical power sources inoperable, restore an inoperable Division 2 battery and charger to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With the Unit 1 and Unit 2 Division 3 batteries and/or both chargers of the above required Division 3 D.C. electrical power sources inoperable, declare the HPCS system inoperable and take the ACTION required by Specification 3.5.1.

#### SURVEILLANCE REQUIREMENTS

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4.8.2.1 Each of the above required 125 volt batteries and chargers shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
  1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and
  2. Total battery terminal voltage is greater than or equal to 129 volts on float charge.

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES - SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Diesel generator Div 1 or Div 2, and diesel generator Div 3 when the HPCS system is required to be OPERABLE, with each diesel generator having:
  1. A day tank containing a minimum of 225 gallons of fuel for Div 1 and Div 2 and 204 gallons of fuel for Div 3.
  2. A fuel storage system containing a minimum of 73,700 gallons of fuel for Div 1 and Div 2 and 36,100 gallons of fuel for Div 3.
  3. A fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and \*.

#### ACTION:

- a. With less than the offsite circuits and/or diesel generators Div 1 or Div 2 of the above required A.C. electrical power sources OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the primary containment and Fuel Handling Building, operations with a potential for draining the reactor vessel and crane operations over the spent fuel storage pool when fuel assemblies are therein. In addition, when in OPERATIONAL CONDITION 5 with the water level less than 22 feet 10 inches above the reactor pressure vessel flange, immediately initiate corrective action to restore the required power sources to OPERABLE status as soon as practical.
- b. With diesel generator Div 3 of the above required A.C. electrical power sources inoperable, restore the inoperable diesel generator Div 3 to OPERABLE status within 72 hours or declare the HPCS system inoperable and take the ACTION required by Specification 3.5.2 and 3.5.3.
- c. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.8.1.2 At least the above required A.C. electrical power sources shall be demonstrated OPERABLE per Surveillance Requirements 4.8.1.1.1, 4.8.1.1.2 (except for the requirement of 4.8.1.1.2.a.5), and 4.8.1.1.3.

\*When handling irradiated fuel in the Fuel Handling Building or primary containment.

TABLE 4.8.1.1.2-1

DIESEL GENERATOR TEST SCHEDULE

<u>Number of Failures in Last 20 Valid Tests*</u>	<u>Number of Failures in Last 100 Valid Tests*</u>	<u>Test Frequency</u>
≤ 1	≤ 4	Once per 31 days
≥ 2	≥ 5	Once per 7 days**

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\*Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul# to like-new condition is completed, provided that the overhaul including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. Ten of these tests shall be in accordance with the routine Surveillance Requirement 4.8.1.1.a.4 and 4.8.1.1.2.a.5, four tests, in accordance with the 184-day testing requirement of Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.a.5. If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to transvalue the failure count to zero requires NRC approval.

\*\*The test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to less than or equal to one.

#A one-time waiver to the requirement for performance of a complete diesel generator overhaul to like-new condition has been granted in order to rezero four control air related diesel generator failures (valid failures Nos. 3 through 6 which occurred on 8/11/86, 2/27/87, 3/17/87 and 10/15/87 respectively).

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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- to standby operation, and (2) automatically energizes the emergency loads with offsite power.
12. Verifying that each fuel transfer pump transfers fuel from the fuel storage tank to the day tank of each diesel.
  13. Verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within  $\pm 10\%$  of its design interval for diesel generators Div 1 and Div 2.
  14. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
    - a. For diesel generators Div 1 and Div 2:
      - 1) Control room switch in pull-to-lock (with local/remote switch in remote).
      - 2) Local/remote switch in local
      - 3) Barring device engaged
      - 4) Inop/Normal switch in inop
    - b. For diesel generator Div 3:
      - 1) Emergency run/stop switch in stop
      - 2) Maintenance/auto/test switch in maintenance
  - g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all three diesel generators simultaneously, during shutdown, and verifying that all three diesel generators accelerate to at least 441 rpm for diesel generators Div 1 and Div 2 and 882 rpm for diesel generator Div 3 in less than or equal to 10 seconds.
  - h. At least once per 10 years by:
    1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and
    2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section 11 Article IWD-5000.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests of any diesel generator is greater than or equal to seven, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

SURVEILLANCE REQUIREMENTS (Continued)

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for diesel generator Div 2, and greater than or equal to 2400 kw (HPCS pump) for diesel generator Div 3 while maintaining speed less than nominal speed plus 75% of the difference between nominal speed and the overspeed trip setpoint or 15% above nominal, whichever is less.

3. Verifying the diesel generator capability to reject a load of 5800 kw for diesel generators Div 1 and Div 2 and 2600 kw for diesel generator Div 3 without tripping. The generator voltage shall not exceed 4784 volts for Div 1 and Div 2 and 5000 volts for Div 3 during and following the load rejection.
4. Simulating a loss of offsite power by itself, and:
  - a) For divisions 1 and 2:
    - 1) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
    - 2) Verifying the diesel generator starts\* on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected loads through the load sequence (individual load timers) and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz during this test.
  - b) For division 3:
    - 1) Verifying de-energization of the emergency bus.
    - 2) Verifying the diesel generator starts\* on the auto-start signal, energizes the emergency bus with the permanently connected loads within 13 seconds and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady

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\*All diesel generator starts for the purpose of this Surveillance Requirement may be preceded by an engine prelube period. The diesel generator start (10 sec)/load (60 sec) from ambient conditions shall be performed at least once per 184 days in these surveillance tests. All other engine starts for the purpose of this surveillance testing may be preceded by other warmup procedures recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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7. Verifying the pressure in all air start receivers for each diesel generator to be greater than or equal to 210 psig.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank.
- c. At least once per 92 days by checking for and removing accumulated water from the fuel oil storage tanks.
- d. By sampling new fuel oil in accordance with ASTM D4057-88 prior to the addition to the storage tank and:
  1. By verifying 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 60/60°F, when compared to the supplier's certificate; or an absolute specific gravity at 60/60°F, of greater than or equal to 0.83 but less than or equal to 0.89; or an API gravity at 60°F of greater than or equal to 26 degrees but less than or equal to 39 degrees, when tested in accordance with ASTM D1298-88,
    - 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, when testing in accordance with the tests specified in ASTM D975-89, if gravity was not determined by comparison with the supplier's certification,
    - c) A flash point equal to or greater than 125°F, when tested in accordance with the tests specified in ASTM D975-89,
    - d) No visible free water or particulate contamination when tested in accordance with ASTM D4176-86.
  2. By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-89 are met when tested in accordance with the tests specified in ASTM D975-89.
- e. At least once every 31 days by obtaining a sample of fuel oil from the storage tanks in accordance with ASTM D2276-88, and verifying that total particulate contamination is less than 10 mg/liter when tested in accordance with ASTM D2276-88.
- f. At least once per 18 months\*, \*\* during shutdown, by:
  1. Subjecting the diesel to an inspection in accordance with instructions prepared in conjunction with its manufacturer's recommendations for this class of standby service.
  2. Verifying the diesel generator capability to reject a load of greater than or equal to 1400 kw (LPCS pump) for diesel generator Div 1, greater than or equal to 729 kw (RHR B pump or RHR C pump)

\*For any start of a diesel, the diesel must be loaded in accordance with the manufacturer's recommendations.

\*\*Except 4.8.1.1.2.e.1 to be performed every refueling outage, for the Div 1 and Div 2 diesel generators.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS

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4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day tank.
  2. Verifying the fuel level in the fuel storage tank.
  3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts from ambient conditions and accelerates to at least 441 rpm for Div 1 and Div 2 and 882 rpm for Div 3 in less than or equal to 10 seconds\*. The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 10 seconds\* after the start signal for Div 1 and Div 2 and 13 seconds\* after the start signal for Div 3.
  5. Verifying the diesel generator is synchronized, loaded to between 5600 and 5800 kw\*\* for diesel generators Div 1 and Div 2 and loaded to greater than or equal to 2600 kw for diesel generator Div 3 in less than or equal to 60 seconds\*, and operates with this load for at least 60 minutes.
  6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

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\*All diesel generator starts for the purpose of this Surveillance Requirement may be preceded by an engine prelube period. The diesel generator start (10 sec)/load (60 sec) from ambient conditions shall be performed at least once per 184 days in these surveillance tests. All other engine starts for the purpose of this surveillance testing may be preceded by other warmup procedures recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

\*\*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test; the loads, however, shall not be less than 5600 kw nor greater than 7000 kw.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

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#### ACTION (Continued)

- f. With both of the above required offsite circuits inoperable, demonstrate the OPERABILITY of three diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 separately for each diesel generator within 8 hours unless the diesel generators are already operating; restore at least one of the above required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION a.
- g. With diesel generators Div 1 and Div 2 of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 for diesel generator Div 3 within 8 hours\*. Restore at least one of the inoperable diesel generators Div 1 and Div 2 to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore both diesel generators Div 1 and Div 2 to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- h. With one offsite circuit of the above required A.C. electrical power sources and diesel generator Div 3 inoperable, apply the requirements of ACTION a and d specified above.
- i. With either diesel generator Div 1 or Div 2 inoperable and diesel generator Div 3 inoperable, apply the requirements of ACTION b, d and e specified above.
- j. With the fuel oil contained in the storage tank not meeting the properties specified in TS 4.8.1.1.2.d.2 or 4.8.1.1.2.e, the fuel oil shall be brought back within the specified limits within 7 days or the associated diesel generator shall be declared inoperable.

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\*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

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#### ACTION (Continued)

restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- c. With one offsite circuit of the above required A.C. sources and diesel generator Div 1 or Div 2 of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If a diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators separately for each diesel generator by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 8 hours\* for each diesel generator which has not been successfully tested within the past 24 hours. Restore at least one of the inoperable A.C. sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and diesel generators Div 1 and Div 2 to OPERABLE status with 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- d. With diesel generator Div 3 of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators separately by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 24 hours\*. Restore diesel generator Div 3 to OPERABLE status within 72 hours or declare the HPCS system and the C ESW pump inoperable and take the ACTION required by Specifications 3.5.1 and 3.7.1.1.
- e. With diesel generator Div 1 or Div 2 of the above required A.C. electrical power sources inoperable, in addition to ACTION b or c, as applicable, verify within 2 hours that all required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

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\*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### A.C. SOURCES - OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Three separate and independent diesel generators, each with:
  1. A separate day fuel tank containing a minimum of 225 gallons of fuel for Div 1 and Div 2 and 204 gallons of fuel for Div 3,
  2. A separate fuel storage system containing a minimum of 73,700 gallons of fuel for Div 1 and Div 2 and 36,100 gallons of fuel for Div 3, and
  3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

#### ACTION:

- a. With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least 8 hours thereafter. If either diesel generator Div 1 or Div 2 has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 for each such diesel generator separately within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With either diesel generator Div 1 or Div 2 inoperable, demonstrate the OPERABILITY of the above required A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 separately for each diesel generator within 24 hours\*;

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\*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.

ATTACHMENT TO LICENSE AMENDMENT NO. 34

FACILITY OPERATING LICENSE NO. NPF-58

DOCKET NO. 50-440

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.

Remove

3/4 8-1

3/4 8-3

3/4 8-5

3/4 8-9

3/4 8-11

Insert

3/4 8-1

3/4 8-3

3/4 8-5

3/4 8-9

3/4 8-11



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. NPF-58

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL.

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated March 21, 1990, The Cleveland Electric Illuminating Company, et al. (the licensees), submitted a request for amendment to the Facility Operating License to revise the Technical Specifications (TS) for the Perry Nuclear Power Plant. The amendment consists of modifying limiting conditions for operation 3.8.1.1 and 3.8.1.2 to accommodate the proposed use of a different type of diesel fuel oil and changing surveillance requirement 4.8.1.1.2 for testing of this oil. Because of the recurrent fuel oil quality problems, the licensees decided to replace the currently used "catalytic cracked" distillate oil with a more stable, grade 2-D, "straight run" fuel oil. Use of this oil requires modification of the relevant technical specifications. The licensees also decided to update diesel fuel oil surveillance methods.

2.0 DISCUSSION AND EVALUATION

The major difference between the currently used fuel oil and the new oil is oil density. The minimum allowable density of grade 2-D oil is lower by about 1.8 percent. The licensees have demonstrated that this difference in density will not have any significant effect on diesel performance. However, the volume of the oil in storage tanks has to be increased to maintain adequate fuel supply for emergency diesel generators which, in accordance with Regulatory Guide 1.137, Rev. 1, are provided to mitigate a design basis event of 7-day duration. The licensees proposed to amend limiting conditions for operation 3.8.1.1 and 3.8.1.2 to include this change. In addition, the revised fuel volume limits also included other considerations. For the diesel generators in Divisions 1 and 2, an increase in electrical loads and a more accurate method for determining unusable fuel volume in the storage tanks were considered. The fuel consumption was determined using time-dependent loads with 15 percent safety margin added. For the Division 3 diesel generator, revised fuel oil volume limits were determined using the method provided in ANSI N195-1976 and assuming continuous diesel operation for 7 days at rated capacity. The resulting increases in minimum fuel volumes in the storage tanks were 6.2 percent for Divisions 1 and 2, and 3.7 percent for Division 3. The staff considers that these changes to the limiting conditions for operation are conservative, and are, therefore, acceptable.

The other proposed change to the Perry Technical Specifications consists of adding a requirement that, if the fuel oil contained in a storage tank does not conform to the surveillance criteria specified in TS 4.8.1.1.2.d.2 and 4.8.1.1.2.e, it could be brought within the specification within 7 days before the affected diesel generator is declared inoperable. This change is acceptable because it is consistent with the requirement of Regulatory Guide 1.137.

The proposed changes to surveillance requirement 4.8.1.1.2 consist of replacing the fuel oil tests presently required by the technical specifications with different tests which will provide an increased and more effective ability to detect unsatisfactory fuel oil, could be performed onsite with more immediate results, and are simpler to perform.

The most significant change is a replacement of the requirement for testing of stored fuel oil in accordance with ASTM D2274-70 every 92 days (surveillance 4.8.1.1.2.d) by the test for determining particulate concentration in the stored fuel oil performed every 31 days in accordance with ASTM D2276-88 (surveillance 4.8.1.1.2.e). The rationale for this change is that the proposed test addresses the actual condition of fuel that will be pumped to diesel generators in terms of particulate (solid) matter which could impair diesel generator operation or result in diesel generator unavailability. The current surveillance requirements, stated in ASTM D2274-70, are oriented to predicting the tendency of fuel to oxidize and form particulates during long term storage, but do not address particulates that may already exist. In addition, the ASTM D2274-70 test results may not accurately correlate with actual fuel condition because they tend to vary depending on factors such as storage conditions. Also, the proposed ASTM D2276-88 test would be performed every 31 days, as opposed to every 92 days for ASTM D2274-70. The more frequent testing for actual particulates in the stored fuel oil would provide better data on fuel condition at the time of test, as well as the tendency for formation of particulates under site storage conditions. The proposed test is more conservative in establishing the adequacy of stored fuel than the present requirements, and it is, therefore, acceptable.

The licensees modified the surveillance procedure and acceptance criteria for new fuel oil prior to its addition to the storage tanks (surveillance 4.8.1.1.2.d). The modification requires sampling to be performed in accordance with ASTM D4057-88, which is an acceptable procedure. Water and sediment in the samples will not be determined by the centrifuge method in accordance with ASTM D1796, but by the Clear and Bright test described in ASTM D4176-86. The staff reviewed this method and concluded that the Clear and Bright test is more sensitive and its use is acceptable. This method will also be used in determining water and sediments in the samples taken periodically from the day and storage tanks, as required by surveillance requirements 4.8.1.1.2.b and 4.8.1.1.2.c.

The proposed amendment will require a flash point test to be performed on new fuel oil prior to its addition to the storage tanks. This would provide an additional indication that new fuel is within specification limits and

will not contaminate the fuel in the storage tanks. The staff finds this change acceptable.

There will be two options for determining specific gravity of new oil. Specific gravity will be determined in accordance with ASTM D1298 and its absolute value, expressed in specific gravity or API gravity units, will be used to determine fuel oil quality by assuring that it is within the prescribed limits. If this option is used, additional measurement of kinematic viscosity in accordance with ASTM D975-89 would be required as a confirmatory test. In the second option, measured specific gravity will be directly compared with the supplier's certified value. Although the first option would give more direct determination of fuel oil quality, the second option is justifiable because if the supplier provides density certification on each load shipped, any contamination occurring during transportation will be detected. The staff reviewed these two options and finds both of them acceptable.

In addition to the tests performed before its addition to the storage tanks (specific gravity, kinematic viscosity, flash point, water and sediment), the new fuel oil will be tested for conformance to the other limits specified in Table 1 of the ASTM D975-89 standard. At present, the Technical Specifications require that the results of these tests be available within 14 days following fuel delivery. Under the licensees' proposed surveillance program, the time for determining the fuel oil properties that may impact diesel generator performance only on a long term basis will be extended from 14 to 31 days. Because of the effective screening done before unloading of the fuel to verify that proper fuel is being received, the proposal to extend the time for obtaining test results for the remaining fuel oil properties from 14 days to 31 days would not adversely affect diesel generator reliability. The staff concurs with the licensees' justification and finds this extension acceptable.

The proposed changes to the Technical Specifications include deleting the requirement for testing of fuel oil stored in tanks in accordance with the ASTM D975-77 standard on a 92-day basis. The licensees' rationale for this deletion is that the fuel oil properties which can affect diesel generator performance do not change during storage. If these properties are within specification when the fuel oil is placed in storage, they will remain within specification unless other non-specification petroleum products are added to the storage tanks. The addition of non-specification petroleum products is precluded by the licensees' proposed new fuel surveillance program, as described above. Over a prolonged period, stored fuel can oxidize and form products which, in significant concentrations, could impair diesel generator performance. However, particulate concentrations and bacteria concentrations are the only things that will change in stored fuel oil. Particulate concentrations will be monitored every 31 days, as required by the amended surveillance procedures. Bacteria growth will be prevented by periodic removal of water from the storage tanks. Considering that the fuel oil properties will not change significantly in storage, and that fuel oil conditions which could affect diesel generator operation will be closely

monitored (on a 31-day basis), further testing of stored fuel in accordance with the ASTM D975-77 standard every 92 days will not provide any additional data nor improve diesel generator reliability. This testing can be, therefore, deleted. The staff concurs with the licensees' justification and concludes that the proposed deletion is acceptable.

The ASTM D975-77 standard requires that the fuel oil testing for sulfur should be performed in accordance with ASTM D129-64. However, the updated ASTM D975-89 standard includes three additional methods, described in ASTM D1552, ASTM D2622 and ASTM D4292, which could be used for testing all grades of diesel fuel oil for sulfur. These methods are also approved in Federal Specification VV-F-800D (July 29, 1988). The staff considers these methods to be acceptable because they produce results equivalent to the results obtained by ASTM D129.

In summary, the staff finds that the proposed change of diesel fuel oil and the resulting changes of limiting conditions for operation 3.8.1.1 and 3.8.1.2 will produce more efficient and safer operation of the emergency diesel generators. The proposed changes to surveillance requirement 4.8.1.1.2 will provide a more conservative approach to fuel oil surveillance. The added conservatism, coupled with the simplified testing procedures, provides prompt assurance of the quality of fuel oil upon delivery and maintenance of high quality of stored fuel. We conclude, therefore, that the requested amendment for the Perry Nuclear Power Plant, submitted in the letter of March 21, 1990, is acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

### 4.0 CONCLUSION

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

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Dated: September 27, 1990