

December 13, 1993

Docket No. 50-440

Mr. Robert A. Stratman
Vice President Nuclear - Perry
Centerior Service Company
P. O. Box 97, S270
Perry, Ohio 44081

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Dear Mr. Stratman:

SUBJECT: AMENDMENT NO. 52 TO FACILITY OPERATING LICENSE NO. NPF-58
(TAC NO. M80944)

The Commission has issued the enclosed Amendment No. 52 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 June 28, 1991.

This amendment revises Technical Specification 3.5.1, Emergency Core Cooling Systems - Operating, by adding an Action Statement to specify the actions to be taken in the event of an inoperable Automatic Depressurization System (ADS) supply header low pressure alarm system.

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 Andrew J. Kugler

Andrew J. Kugler, Assistant Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 52 to License No. NPF-58
2. Safety Evaluation

cc w/enclosures:

See next page

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DATE	12/8/93	11/17/93		

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

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Vice President Nuclear - Perry
Centerior Service Company
P. O. Box 97, S270
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Sincerely,

A handwritten signature in cursive script, appearing to read "Andrew J. Kugler".

Andrew J. Kugler, Assistant Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

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1. Amendment No. 52 to License No. NPF-58
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Robert A. Stratman
Centerior Service Company

Perry Nuclear Power Plant
Unit Nos. 1 and 2

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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. 52
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, Centerior Service Company, Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company, and Toledo Edison Company (the licensees) dated June 28, 1991, 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. 52 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



Andrew J. Kugler, Assistant Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of issuance: December 13, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 52

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 5-3

B 3/4 5-1

B 3/4 5-2

Insert

3/4 5-3

B 3/4 5-1

B 3/4 5-2

EMERGENCY CORE COOLING SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- d. For ECCS divisions 1 and 2, provided that ECCS division 3 is OPERABLE:
1. With LPCI subsystem "A" and either LPCI subsystem "B" or "C" inoperable, restore at least the inoperable LPCI subsystem "A" or inoperable LPCI subsystem "B" or "C" to OPERABLE status within 72 hours.
 2. With the LPCS system inoperable and either LPCI subsystems "B" or "C" inoperable, restore at least the inoperable LPCS system or inoperable LPCI subsystem "B" or "C" to OPERABLE status within 72 hours.
 3. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours*.
- e. For ECCS divisions 1 and 2, provided that ECCS division 3 is OPERABLE and divisions 1 and 2 are otherwise OPERABLE:
1. With one of the above required ADS valves inoperable, restore the inoperable ADS valve to OPERABLE status within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
 2. With two or more of the above required ADS valves inoperable, be in at least HOT SHUTDOWN within 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
- f. With an ADS safety related instrument air header(s) low pressure alarm system instrumentation channel(s) inoperable, determine the associated ADS header pressure from alternative indication and verify that ADS header pressure is greater than or equal to the alarm setpoint specified in Surveillance Requirement 4.5.1.e.2.c at least once per 12 hours.
- g. With an ECCS discharge line "keep filled" pressure alarm instrumentation channel inoperable, perform surveillance 4.5.1.a.1 at least once per 24 hours.
- h. In the event an ECCS system is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2. within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

* Whenever two or more RHR subsystems are inoperable, if unable to attain COLD SHUTDOWN as required by this ACTION, maintain reactor coolant temperature as low as practical by use of alternate heat removal methods.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.1 ECCS division 1, 2 and 3 shall be demonstrated OPERABLE by:

- a. At least once per 31 days for the LPCS, LPCI and HPCS systems:
 1. Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.
 2. Verifying that each valve, manual, power operated or automatic, in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. Verifying that, when tested pursuant to Specification 4.0.5, each:
 1. LPCS pump develops a flow of at least 6110 gpm at a differential pressure greater than or equal to 128 psid for the system.
 2. LPCI pump develops a flow of at least 7100 gpm at a differential pressure greater than or equal to 24 psid for the system.
 3. HPCS pump develops a flow of at least 6110 gpm at a differential pressure greater than or equal to 200 psid for the system.
- c. For the LPCS, LPCI and HPCS systems, at least once per 18 months:
 1. Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded from this test.
 2. Performing a CHANNEL CALIBRATION of the ECCS discharge line "keep filled" pressure alarm instrumentation.
- d. For the HPCS system, at least once per 18 months, verifying that the suction is automatically transferred from the condensate storage tank to the suppression pool on a condensate storage tank low water level signal and on a suppression pool high water level signal.

Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in position for another mode of operation.

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

3/4.5.1 and 3/4.5.2 ECCS - OPERATING and SHUTDOWN

ECCS division 1 consists of the low pressure core spray system and low pressure coolant injection subsystem "A" of the RHR system and the automatic depressurization system (ADS) as actuated by ADS trip system "A". ECCS division 2 consists of low pressure coolant injection subsystems "B" and "C" of the RHR system and the automatic depressurization system (ADS) as actuated by ADS trip system "B".

The low pressure core spray (LPCS) system and the low pressure coolant injection (LPCI) system is provided to assure that the core is adequately cooled following a loss-of-coolant accident and provides adequate core cooling capacity for all break sizes up to and including the double-ended reactor recirculation line break, and for smaller breaks following depressurization by the ADS.

The LPCS and LPCI are sources of emergency core cooling after the reactor vessel is depressurized and a source for flooding of the core in case of accidental draining.

The surveillance requirements provide adequate assurance that the LPCS and LPCI systems will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage to piping and to start cooling at the earliest moment.

ECCS division 3 consists of the high pressure core spray system. The high pressure core spray (HPCS) system is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the reactor coolant system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCS system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCS system operates over a range of 1177 psid, differential pressure between the reactor vessel and HPCS suction source, to 0 psid.

The capacity of the system is selected to provide the required core cooling. The HPCS pump is designed to deliver greater than or equal to 517/1550/6110 gpm at differential pressures of 1177/1147/200 psid. Initially, water from the condensate storage tank is used instead of injecting water from the suppression pool into the reactor, but no credit is taken in the safety analyses for the condensate storage tank water.

With the HPCS system inoperable, adequate core cooling is assured by the OPERABILITY of the redundant and diversified automatic depressurization system and both the LPCS and LPCI systems. In addition, the reactor core isolation cooling (RCIC) system, a system for which no credit is taken in the safety

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

ECCS-OPERATING and SHUTDOWN (Continued)

analysis, will automatically provide makeup at reactor operating pressures on a reactor low water level condition. The HPCS out-of-service period of 14 days is based on the demonstrated OPERABILITY of redundant and diversified low pressure core cooling systems.

The surveillance requirements provide adequate assurance that the HPCS system will be OPERABLE when required. Flow and total developed head values for surveillance testing include system losses to ensure design requirements are met. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test with reactor vessel injection requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to provide cooling at the earliest moment.

Upon failure of the HPCS system to function properly after a small break loss-of-coolant accident, the automatic depressurization system (ADS) automatically causes selected safety-relief valves to open, depressurizing the reactor so that flow from the low pressure core cooling systems can enter the core in time to limit fuel cladding temperature to less than 2200°F. ADS is conservatively required to be OPERABLE whenever reactor vessel pressure exceeds 100 psig even though LPCS flow is 6110 gpm rated flow at 128 psid, and LPCI flow is 7100 gpm at 24 psid.

ADS automatically controls eight selected safety-relief valves although the safety analysis only takes credit for seven valves. It is therefore appropriate to permit one valve to be out-of-service for up to 14 days without materially reducing system reliability. In the event that the ADS safety related instrument air header(s) low pressure alarm system instrumentation channel(s) is inoperable, alternate indication is provided.

3/4.5.3 SUPPRESSION POOL

The suppression pool is required to be OPERABLE as part of the ECCS to ensure that a sufficient supply of water is available to the HPCS, LPCS and LPCI systems in the event of a LOCA. This limit on suppression pool minimum water volume ensures that sufficient water is available to permit recirculation cooling flow to the core. The OPERABILITY of the suppression pool in OPERATIONAL CONDITIONS 1, 2 or 3 is required by Specification 3.6.3.1.

Repair work might require making the suppression pool inoperable. This specification will permit those repairs to be made and at the same time give assurance that the irradiated fuel has an adequate cooling water supply when the suppression pool must be made inoperable, including draining, in OPERATIONAL CONDITIONS 4 or 5.

In OPERATION CONDITION 4 and 5 the suppression pool minimum required water volume is reduced because the reactor coolant is maintained at or below 200°F. Since pressure suppression is not required below 212°F, the minimum required water volume is based on NPSH, recirculation volume, and vortex prevention plus a safety margin for conservatism.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 52 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 June 28, 1991, the Cleveland Electric Illuminating Company, et al. (licensees), proposed changes to the Technical Specifications (TSs) for the Perry Nuclear Power Plant, Unit No. 1. The proposed changes would modify TS 3.5.1, Emergency Core Cooling Systems - Operating. Specifically, the amendment would add an Action statement to specify the actions to be taken in the event of an inoperable automatic depressurization system (ADS) safety related instrument air header low pressure alarm system instrumentation channel.

Under certain accident conditions, it might be necessary to rapidly depressurize the reactor vessel. To accomplish this depressurization, ADS logic is installed for either automatic or manual actuation. When ADS is actuated, the eight associated main steam safety/relief valves are opened, relieving the reactor vessel pressure. The valves are opened in the ADS mode by air supplied by accumulators. There are two accumulators for each ADS valve. The accumulators are pressurized by air from two separate safety related air headers. Four of the ADS valves receive air from one of the headers while the remaining four ADS valves receive air from the other header. The air pressure in each header is monitored by a pressure transmitter that provides indication and a low pressure alarm. If the air pressure in either header decreases to the alarm setpoint, the annunciator will alert the operators to the problem.

2.0 EVALUATION

The licensee has proposed to add an Action statement to TS 3.5.1. The change would provide the licensee with clear guidance on what actions should be taken if one or both of the automatic depressurization system (ADS) safety related instrument air header low pressure alarm system instrumentation channels should become inoperable. At the present time, TS do not provide the licensee with any action to take if this problem occurs. Lacking any other guidance, the licensee would be required to declare the ADS valves associated with the affected air header(s) inoperable. TS 3.5.1 would then require the licensee to be in at least cold shutdown within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 100 psig within the next 24 hours. However, although one or both alarm channels are inoperable, this does not mean that the associated ADS valves will not perform their design

function. As long as the air pressure in the accumulators is maintained, the ADS valves would still be capable of performing properly. Therefore, a shutdown based only on an inoperable low pressure alarm channel would be unnecessary and may be contrary to plant safety.

The licensee proposes that if one or both alarm channels become inoperable, the TS require the licensee to determine the associated ADS air header(s) pressure from alternative indication and verify that ADS header pressure is greater than or equal to the alarm setpoint specified in Surveillance Requirement 4.5.1.e.2.c at least once per 12 hours. At Perry, alternate indication of ADS header pressure is already available in the Control Room and locally in the Intermediate Building. Since the air header pressure instruments do not directly support the operability of ADS, periodic verification that the pressure is above the TS alarm setpoint provides an adequate alternative means of monitoring ADS accumulator integrity. Therefore, the proposed change to TS 3.5.1 is acceptable.

Finally, the licensee proposes to revise the TS Bases, Section 3/4.5.1 and 3/4.5.2, ECCS - Operating and Shutdown, to address the change discussed above. The staff finds the revised Bases acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 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. 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 (56 FR 37590). 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.

5.0 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Andrew J. Kugler

Date: December 13, 1993