

July 18, 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. 31 TO FACILITY OPERATING LICENSE NO. NPF-58
(TAC NO. 66785)

The Commission has issued the enclosed Amendment No. 31 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 November 19, 1987 as supplemented November 28, 1989.

This amendment revises Technical Specification (TS) Table 4.3.6-1, adding a requirement to verify trip setpoints while performing weekly Channel Functional Testing of the Intermediate Range Monitors (IRMs) for control rod block instrumentation. The amendment also extends the interval for channel calibration of the control rod block IRM surveillance TS in Table 4.3.6-1 from once every 6 months to once every 18 months.

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

Timothy G. Colburn, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects - III, IV, V
& Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

- Amendment No. 31 to License No. NPF-58
- Safety Evaluation

cc w/enclosures:
See next page

*See Previous Concurrence

Office: LA/PDIII-3	PM/PDIII-3	*SICB	*NRR/OTSB
Surname: PKreutzer	TColburn/	SNewberry	JCalvo
Date: 7/6/90	7/6/90	5/30/90	7/5/90
Office: PD/PDIII-3	OGC-WF1		
Surname: JHannon	R Bachmann		
Date: 7/10/90	7/12/90		

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JFol
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PDC

Docket No. 50-440

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Mr. Alvin Kaplan, Vice President
 Nuclear Group
 The Cleveland Electric Illuminating
 Company
 10 Center Road
 Perry, Ohio 44081

Dear Mr. Kaplan:

SUBJECT: AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. NPF-58
 (TAC NO. 66785)

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This amendment revises Technical Specification (TS) Table 4.3.6-1, adding a requirement to verify trip setpoints while performing weekly Channel Functional Testing of the Intermediate Range Monitors (IRMs) for control rod block instrumentation. The amendment also extends the interval for channel calibration of the control rod block IRM surveillance TS in Table 4.3.6-1 from once every 6 months to once every 18 months.

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,

Timothy G. Colburn, Sr. Project Manager
 Project Directorate III-3
 Division of Reactor Projects - III, IV, V
 & Special Projects
 Office of Nuclear Reactor Regulation

Enclosures:

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

cc w/enclosures:
 See next page

Office: LA/PDIII-3	PM/PDIII-3	SICB	NRR/OTSB
Surname: PKreutzer	TColburn/	SNewberry	JCalvo
Date: / /90	5/9/90	5/30/90	5/15/90
Office: PD/PDIII-3	OGC-WF1		
Surname: JHannon			
Date: 7/6/90	/ /90		

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

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The Honorable Lawrence Logan
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The Honorable Robert V. Orosz
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180 East Broad Street
Columbus, Ohio 43266-0573



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. 31
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 November 19, 1987 as supplemented November 28, 1989, 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:

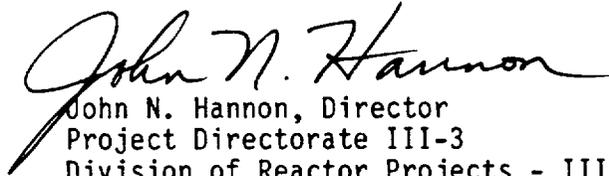
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(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 31 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: July 18, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 31

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. The changed pages are overleaf for each other and therefore maintain document completeness.

Remove

Insert

3/4 3-59

3/4 3-59

3/4 3-60

3/4 3-60

TABLE 4.3.6-1

CONTROL ROD BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u> (a)	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
<u>1. ROD PATTERN CONTROL SYSTEM</u>				
a. Low Power Setpoint	NA	S/U ^(b) ,M	SA [#]	1, 2
b. RWL - High Power Setpoint	NA	S/U ^(b) ,M	SA [#]	1
<u>2. APRM</u>				
a. Flow Biased Neutron Flux - Upscale				
1) Flow Biased	NA	S/U ^(b) ,W	SA ^(c)	1
2) High Flow Clamped	NA	S/U ^(b) ,W	SA ^(c)	1
b. Inoperative	NA	S/U ^(b) ,W	NA	1, 2, 5
c. Downscale	NA	S/U ^(b) ,W	SA	1
d. Neutron Flux - Upscale, Startup	NA	S/U ^(b) ,W	SA	2, 5
<u>3. SOURCE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(b) ,W	NA	2**, 5
b. Upscale	NA	S/U ^(b) ,W	SA	2**, 5
c. Inoperative	NA	S/U ^(b) ,W	NA	2**, 5
d. Downscale	NA	S/U ^(b) ,W	SA	2**, 5
<u>4. INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(b) ,W	NA	2, 5
b. Upscale	NA	S/U ^(b) ,W ^(d)	R	2, 5
c. Inoperative	NA	S/U ^(b) ,W	NA	2, 5
d. Downscale	NA	S/U ^(b) ,W ^(d)	R	2, 5
<u>5. SCRAM DISCHARGE VOLUME</u>				
a. Water Level - High	NA	M	R [#]	1, 2, 5*
<u>6. REACTOR COOLANT SYSTEM RECIRCULATION FLOW</u>				
a. Upscale	NA	S/U ^(b) ,M	SA ^(c)	1
<u>7. REACTOR MODE SWITCH SHUTDOWN POSITION</u>				
	NA	R	NA	3, 4

PERRY - UNIT 1

3/4 3-59

Amendment No. 31

TABLE 4.3.6-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES:

- a. Neutron detectors may be excluded from CHANNEL CALIBRATION.
- b. Within 7 days prior to startup.
- c. The CHANNEL CALIBRATION shall exclude the flow reference transmitters, these transmitters shall be calibrated at least once per 18 months.
- d. Trip setpoints are verified during weekly CHANNEL FUNCTIONAL TESTS.

*With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**With IRMs on range 2 or below.

#Calibrate trip unit setpoint at least once per 31 days.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 31 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 November 19, 1987, the Cleveland Electric Illuminating Company et al. (licensees), requested a license amendment for the Perry Nuclear Power Plant Unit No. 1. The proposed amendment clarifies the surveillance requirement in Table 4.3.6-1 of the Technical Specifications for weekly channel functional tests of Intermediate Range Monitors (IRMs) to add performance of trip setpoint verification on the upscale and downscale IRM Rod Block setpoints. It also revises the IRM channel calibration frequency from once every 6 months to once every 18 months (consistent with the channel calibration frequencies for the IRM neutron flux scram circuitry).

Modification of the IRM Channel Calibration surveillance interval for Control Rod Block Instrumentation was proposed by the licensees as part of a scram reduction effort following review of LER 87-052 dated July 31, 1987. This review identified what the licensees viewed as an unnecessary and avoidable burden due to differences among various Technical Specification surveillance intervals required for the channel calibration of IRMs. Technical Specification 3.3.6, "Control Rod Block Instrumentation," requires an IRM channel calibration on a 6-month surveillance interval versus the 18-month interval prescribed for the same IRMs for other; more safety-significant functions.

During a conference call on March 3, 1988 the staff requested additional information from the licensees with respect to instrument drift data, accident/transient analyses and component testing during channel functional testing and channel calibration. The licensees supplied this information by letter dated November 28, 1989.

2.0 EVALUATION

The IRM Rod Block function is required to be operable only in Operational Conditions 2 and 5. The design of the IRM circuitry precludes IRM channel calibration with the reactor in Operational Condition 1 due to high neutron flux and Mode Switch position; during normal Mode 1 operation the neutron detectors are withdrawn from the core and the Mode Switch is in the Run Position with the IRM trip functions bypassed. Therefore, the present

Technical Specifications would require all the IRM Channels to be declared inoperable if sustained power operations have occurred which extended beyond the surveillance interval due date (6 months). Due to this "inoperability," Action Statements for TS 3.3.6 require that one of the IRM Channels be placed in the tripped condition within 1 hour after entering Mode 2. This results in the generation of a control rod block and, since the same IRM logic serves both the rod block and the scram functions, it also results in the Reactor Protection System (RPS) being placed in a half-scram condition. Requiring the performance of IRM channel calibrations under the above plant conditions results in an increased possibility for an unnecessary scram and safety system challenges. The extension of the surveillance interval for the performance of the IRM Rod Block Channel Calibration from 6 months to 18 months would help avoid unnecessary scrams during Mode 2 operations by significantly reducing the time that the half-scram signal is inserted in the RPS after entry into Mode 2 and also would eliminate unnecessary manipulations of plant equipment in order to perform the calibration at the same time that a portion of the RPS system is in the tripped condition.

In response to NRC staff questions as to expected instrument drift for an 18-month surveillance interval as opposed to the current 6-month surveillance interval, the licensees responded that their review of data does not indicate that instrument drift is a significant concern. Of 341 Channel Functional Tests that have been performed on the eight IRM channels since July 1987, only in a single instance were the Rod Block setpoints found outside of the "leave-as-is-zone," (one division of scale away from the nominal setpoint value). This drift was on an upscale alarm setpoint, and in the conservative direction and was detected during shutdown for the first refueling outage. On this basis, the licensees judge that instrument drift is not expected to be significantly greater for the 18-month surveillance interval than for the 6-month surveillance interval.

With respect to the staff's request for information as to which accident/transient analysis in the Updated Safety Analyses Report (USAR) takes credit for the rod block function, the licensees reviewed the USAR Chapter 15 accident/transient analyses and confirmed that the IRM Neutron Flux Rod Block Function which is the subject of the proposed TS change is not relied upon to ensure safety in any of the accident/transient analyses. The rod block functions directly referenced in the accident/transient analyses are the refueling interlocks which are relied upon to preclude the removal of more than one control rod while in the refuel mode (USAR 15.4.1.1.2.f) and the Rod Pattern Control System (RPCS), a subsystem of the Rod Control and Information System (RC&IS), which prevents out-of-sequence continuous control rod withdrawal accidents during reactor startup (USAR 15.4.1.2.2.3). The safety analyses do take credit for an IRM or APRM (average power range monitor) neutron flux scram via the reactor protection system (RPS) circuitry, but do not rely upon the IRM neutron flux rod blocks in any analysis. The channel calibration for the IRM RPS input is on an 18-month frequency.

The staff also requested information related to which portions of the IRM circuitry are checked during a functional test. The licensees responded that the functional test verifies the full insertion capabilities of the IRM detectors and checks the performance of the amplifier attenuators, gain inverters and mean square analog units and verifies proper output from the operational amplifier (op amp). The functional test verifies the setpoints on the trip units by applying a test voltage (internally generated from the IRM drawer to the input of the op amp) which provides the input to the trip units. The signal is adjusted to verify that the value of the established upscale and downscale trip setpoints is appropriate. If the value is found outside the leave-as-is-zone, the reference value into the trip unit is adjusted until the trip function occurs at the proper value. Since the trip functions are dependent on reaching a preset point on the currently selected IRM range rather than based on an actual calibrated value of neutron flux, the licensees argue that it is not important to check the neutron flux calibration of the IRM detectors via channel calibration any more frequently for the rod block function than is currently scheduled for the RPS scram functions (18 months).

The staff has reviewed the licensees' additional information in response to our questions and agrees that the safety significance of the licensees' request is limited due to the nonreliance of the neutron flux rod block in any USAR Chapter 15 accident/transient analysis. Any safety significance due to less frequent calibrations of the rod block circuitry would be outweighed by the compensating reduction in the likelihood of low-power scrams and resultant challenges to safety systems which might occur should the licensees be required, as described earlier, to declare the IRM rod block "inoperable" following an extended run of power operation. Therefore, based on the above discussions, the staff finds the licensees' proposed change to be 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.

Principal Contributor: T. Colburn

Dated: July 18, 1990