July 18, 1990

Docket No. 50-440

Nuclear-Perry

10 Center Road

Company

DISTRIBUTION: NRC & Local PDRs Docket Files PDIII-3 r/f JHannon JZwolinski PKreutzer OGC-WF1 TColburn DHagan EJordan GHill(4) PDIII-3 Gray WandaJones JCalvo ACRS(10)GPA/PA ARM/LFMB

Dear Mr. Lyster:

Perry, Ohio 44081

Mr. Michael D. Lyster, Vice President

The Cleveland Electric Illuminating

SUBJECT: AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NO. NPF-58 (TAC NO. 68273)

II-3

The Commission has issued the enclosed Amendment No. 32 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 May 20, 1988.

This amendment revises the alarm setpoint for the control rod scram accumulator from 1535 + 15 psig decreasing to greater than or equal to 1520 psig decreasing.

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. 32 to 1. License No. NPF-58

Safety Evaluation 2.

cc w/enclosures: See next page

		Rec
Office:	LA/PDIII-3	PM/PDIII-
Surname:	PKnewtzer	TColburn/
Date:	7/5/90	715190

9007230261 900718 PDR ADOCK 05000440

FDC

annon /90

OGC-WF1 Cachmann 1/12/90

(PI

DFOI 11

Mr. Michael D. Lyster The Cleveland Electric Illuminating Company

٠.

cc: Jay E. Silberg, Esq. Shaw, Pittman, Potts & Trowbridge 2300 N Street, N.W. Washington, D.C. 20037

> David E. Burke The Cleveland Electric Illuminating Company P.O. Box 5000 Cleveland, Ohio 44101

Resident Inspector's Office U.S. Nuclear Regulatory Commission Parmly at Center Road Perry, Ohio 44081

Regional Administrator, Region III U.S. Nuclear Regulatory Commission 799 Roosevelt Road Glen Ellyn, Illinois 60137

Frank P. Weiss, Esq. Assistant Prosecuting Attorney 105 Main Street Lake County Administration Center Painesville, Ohio 44077

Ms. Sue Hiatt OCRE Interim Representative 8275 Munson Mentor, Ohio 44060

Terry J. Lodge, Esq. 618 N. Michigan Street Suite 105 Toledo, Ohio 43624

John G. Cardinal, Esq. Prosecuting Attorney Ashtabula County Courthouse Jefferson, Ohio 44047

Robert A. Newkirk Cleveland Electric Illuminating Company Perry Nuclear Power Plant P. O. Box 97 E-210 Perry, Ohio 44081 Perry Nuclear Power Plant Unit 1

Mr. James W. Harris, Director Division of Power Generation Ohio Department of Industrial Relations P. O. Box 825 Columbus, Ohio 43216

The Honorable Lawrence Logan Mayor, Village of Perry 4203 Harper Street Perry, Ohio 44081

The Honorable Robert V. Orosz Mayor, Village of North Perry North Perry Village Hall 4778 Lockwood Road North Perry Village, Ohio 44081

Attorney General Department of Attorney General 30 East Broad Street Columbus, Ohio 43216

Radiological Health Program Ohio Department of Health 1224 Kinnear Road Columbus, Ohio 43212

Ohio Environmental Protection Agency DERR--Compliance Unit PO Box 1049 1800 Watermark Drive ATTN: Zack A. Clayton Columbus, Ohio 43266-0149

Mr. Phillip S. Haskell, Chairman Perry Township Board of Trustees Box 65 4171 Main Street Perry, Ohio 44081

State of Ohio Public Utilities Commission 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. 32 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 May 20, 1988 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. 32 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. 32

٠.

FACILITY OPERATING LICENSE NO. NPF-58

DOCKET NO. 50-440

Replace the following page of the Appendix "A" Technical Specifications with the attached page. The revised page is identified by the amendment number and contains vertical lines indicating the area of change. The overleaf page is provided to maintain document completeness.

Remove	Insert
3/4 1-9	3/4 1-9

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

- 2. With more than one withdrawn control rod with the associated scram accumulator inoperable and with no control rod drive pump operating, immediately place the reactor mode switch in the Shutdown position.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.1.3.3 Each control rod scram accumulator shall be determined OPERABLE:
 - a. At least once per 7 days by verifying that the pressure is greater than or equal to 1520 psig unless the control rod is inserted and disarmed or scrammed.
 - b. At least once per 18 months by performance of a:
 - 1. CHANNEL FUNCTIONAL TEST of the leak detectors, and
 - 2. CHANNEL CALIBRATION of the pressure detectors, and verifying an alarm setpoint of > 1520 psig on decreasing pressure.

REACTIVITY CONTROL SYSTEMS

CONTROL ROD DRIVE COUPLING

LIMITING CONDITION FOR OPERATION

3.1.3.4 All control rods shall be coupled to their drive mechanisms.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 and 2 with one control rod not coupled to its associated drive mechanism, within 2 hours:
 - 1. If permitted by the RPCS, insert the control rod drive mechanism to accomplish recoupling and verify recoupling by withdrawing the control rod, and:
 - a) Observing any indicated response of the nuclear instrumentation, and
 - b) Demonstrating that the control rod drive will not go to the overtravel position.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

- 2. If recoupling is not accomplished on the first attempt or, if not permitted by the RPCS, then until permitted by the RPCS, declare the control rod inoperable, insert the control rod and disarm the associated directional control valves** either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

- b. In OPERATIONAL CONDITION 5* with a withdrawn control rod not coupled to its associated drive mechanism, within 2 hours, either:
 - 1. Insert the control rod to accomplish recoupling and verify recoupling by withdrawing the control rod and demonstrating that the control rod will not go to the overtravel position, or
 - 2. If recoupling is not accomplished, insert the control rod and disarm the associated directional control valves** either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.
- c. The provisions of Specification 3.0.4 are not applicable.

^{*}At least each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

^{**}May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 32 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 May 20, 1988, the Cleveland Electric Illuminating Company, et al. (licensees), requested a license amendment for the Perry Nuclear Power Plant, Unit No. 1. The proposed amendment would modify the control rod scram accumulator alarm setpoint of Technical Specification (TS) 4.1.3.3.b.2 from 1535 + 15 psig to greater than or equal to 1520 psig. The licensees' request was submitted following recommendations from General Electric Company (GE) as contained in GE Service Information Letter (SIL) -429 Revision 1 dated January 18, 1988, "HCU Accumulator Pressure Switches." The SIL documents problems experienced with significant low-side instrument drift experienced for the subject pressure switches beyond the margin provided by the current TS alarm setpoint. The purpose of the alarm setpoint is to maintain sufficient nitrogen pressure in the HCU accumulator for required control rod scram performance.

2.0 DISCUSSION

The control rod scram accumulators are used to provide the driving force for inserting control rods following a scram signal. The scram accumulators are hydraulic cylinders with an internal free floating piston. The piston separates the water on top from the nitrogen gas underneath. The scram accumulator is precharged with Nitrogen gas, and charging water pressure compresses the gas to a nominal pressure of approximately 1720 psig. When a scram signal is generated, water in the scram accumulator and charging line is admitted under the Control Rod Drive Mechanism (CRDM) drive piston, and the water above the piston is vented to the scram discharge volume (SDÝ). The large differential pressure between the accumulator and the SDV produces a large upward force on the index tube of the CRDM. This force gives the rod a high initial acceleration and provides a large margin of force to overcome friction and the weight of the rod. After the initial acceleration is achieved, the CRDM insertion continues at a nearly constant velocity. This characteristic provides a high initial rod insertion rate. As the drive piston nears the top of its stroke, the piston seals close off the large passage (buffer shaft orifices) in the buffer shaft, and the drive slows.

9007230264 900718 PDR ADOCK 05000440 PDC PDC In addition to the accumulator, reactor pressure can also be used to scram the control rods. Upon a scram, the accumulator provides the initial pressure to insert the control rod. As the accumulator discharges, its pressure drops rapidly. When the accumulator pressure drops below the reactor pressure, reactor pressure forces a ball check valve in the CRDM to unseat, blocking accumulator pressure and allowing reactor pressure to complete the drive stroke. At reactor pressure greater than about 600 psig, reactor pressure alone is capable of scramming the drive. At low pressures (less than 600 psig), the accumulator is necessary to scram the drive.

The accumulator pressure is verified weekly in accordance with the surveillance requirements of TS 3.1.3.3. In addition, pressure switch alarms are provided to monitor the accumulator pressure between weekly surveillances. The pressure switch detectors are presently set to alarm at 1535 + 15 psig on decreasing pressure in accordance with TS surveillance requirement 4.1.3.3.b.2. However, the upper setpoint limit of 1550 psig has not provided sufficient flexibility to assure that the pressure switch alarms at an accumulator pressure of greater than or equal to 1520 psig. This is because the present TS setpoint does not always provide sufficient instrument drift margin.

The licensees have stated that at initial startup, the calibrated setpoint range for the pressure switches was between 1520-1550 psig. The first major TS required surveillance of the pressure switch setpoints was performed on December 27, 1985. During this surveillance, 48 percent of the pressure switches alarmed outside of the calibrated setpoint range specified by the present TS (11.4 percent alarmed at 1520 psig or below.) TS required surveillances were again performed for 86 HCU pressure switches on January 15, 1986. Twenty-two percent of the alarm setpoints actuated outside of the calibrated setpoint range (12.8 percent alarmed at 1520 psig or below). On August 8, 1987 all 177 HCU Accumulator Alarm Pressure Switch surveillances were performed. This time 42.9 percent actuated outside of the calibrated setpoint range with 14.7 percent alarming at or below 1520 psig. Based on this operating experience, it does not appear that the 30 psig band (1520-1550 psig) has provided adequate instrument drift margin for certain of the installed accumulator pressure switches.

To allow for sufficient instrument drift margin, the requested change proposes to amend the surveillance requirements (TS 4.1.3.3.b.2) to state that the low pressure alarm be set at "equal to or greater than 1520 psig" on decreasing pressure with no upper setpoint limit. This would allow for a sufficiently high setpoint value to be established.

3.0 EVALUATION

The HCU accumulator pressure switches are bourdon tube devices manufactured by Barksdale, Inc. with a proof pressure of 4800 psig and an adjustable setpoint range of 160-3200 psig (Model No. BIT-GH32SS). As stated in GE SIL-429 Revision 1, the major concern associated with the upper setpoint for the low pressure alarm is that the selected alarm setpoint should not be set so high that the alarm fails to reset following accumulator repressurization after a scram. The licensees have indicated that if this were to occur, the affected accumulator(s) would be declared inoperable and the appropriate action statements of TS 3.1.3.3 would be taken. Failure of the alarm to reset in this manner would also not affect the ability of the accumulators to function

during a scram. All that would be lost would be the alarm function. GE SIL-429 Revision 1 has recommended a nominal trip setpoint of 1605 psig on decreasing pressure which should provide adequate setpoint drift margin while avoiding the concern of a too-high setpoint mentioned above. The SIL also states that higher settings may require more frequent nitrogen addition during normal operations (due to alarms actuating at a higher pressure than at present time). This does not represent a safety concern since the accumulators are located in containment which is normally accessible during plant operations. Additionally, discussions with the licensees have indicated that occupational radiation exposure as a result of the change is insignificant. The accumulators are located in a low dose rate (approximately 2.5 mrem/hr.). See Figure 12.3-3 of the Updated Safety Analysis Report. It takes approximately 30 minutes to recharge an alarming cylinder back to its normal pressure of 1750 psig. The calculated additional alarms (due to setting the actual alarm setpoint at a higher value as recommended by GE SIL-429 Revision 1) experienced in a given year would be approximately 22. This results in approximately 11 additional hours in containment in this low dose area or approximately 28 additional mrem of exposure. This would be spread over six shifts and is considered insignificant.

The staff has determined, based on the above, that the proposed change would provide increased allowance for expected instrument drift and would reduce the likelihood that a given accumulator would be at a lower pressure than the 1520 psig required for performance of its intended safety function. Further, the staff has determined that approval of the proposed amendment would not otherwise create a safety concern with respect to the ability of the accumulator to perform their safety function. Therefore, the staff finds the proposed TS change to be acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves 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.

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, 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

ж іс . т

.