

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

June 10, 1987

Docket No.: 50-440

Mr. Murray R. Edelman Sr. Vice President Nuclear Group The Cleveland Electric Illuminating Company P. O. Box 5000 Cleveland, Ohio 44101

Dear Mr. Edelman:

SUBJECT: EMERGENCY CHANGE TO TECHNICAL SPECIFICATIONS CONCERNING MAIN STEAM

LINE HIGH TEMPERATURE

RE: Perry Nuclear Power Plant, Unit No. 1

The Commission has issued the enclosed Amendment No. 7 to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant, Unit No. 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 29, 1987.

This amendment changes the main steam line high temperature trip setpoints and allowable values for the turbine building and steam tunnel, items 2.f, 2.g, 2.h, 4.f, 4.g, 5.f and 5.g of Table 3.3.2-2 of the TSs. These changes were authorized by telephone on May 29, 1987, and confirmed by letter dated June 1, 1987.

We have reviewed the circumstances associated with your request for an emergency TS change and concluded that the relief provided by this amendment is necessary to avoid effective derating of Perry Unit 1 and to permit continued startup testing and operation in a timely manner. We have also concluded that these circumstances could not have been avoided. Therefore, we concluded that a valid emergency existed, as defined in 10 CFR 50.91(a)(5), and your application has been processed accordingly.

8706240424 870610 PDR ADBCK 05000440 PDR

A copy of our Safety Evaluation is also enclosed. Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's biweekly Federal Register Notice.

Sincerely,

Timothy G. Colburn, Project Manager

Finistry M. Colber

Project Directorate III-1

Division of Reactor Projects - III, IV, V & Special Projects

cc w/enclosures: See next page

Enclosures:

1. Amendment No. 7 to License No. NPF-58

2. Safety Evaluation

Mr. Murray R. Edelman The Cleveland Electric Illuminating Company

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

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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

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Ohio Environmental Protection Agency 361 East Broad Street Columbus, Ohio 43266-0558

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State of Ohio Public Utilities Commission 180 East Broad Street Columbus, Ohio 43266-0573

Distribution/Concurrence for Letter to Edelman dated - 6/10/87

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

CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL

DOCKET NO. 50-440

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 7 License No. NPF-58

- 1. The Nuclear Regulatory Commission (the Commission) has found that
 - A. The application for amendment by Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company, and Toledo Edison Company (the licensees) dated May 29, 1987, 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:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. are hereby incorporated into this license. 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 May 29, 1987.

FOR THE NUCLEAR REGULATORY COMMISSION

Gary M. Holaman, Assistant Director for Region III and V Reactors

Division of Reactor Projects III, IV, V

& Special Projects

Attachment: Changes to the Technical Specifications

Date of Issuance: June 10, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 7

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 page(s) provided to maintain document completeness.

Kemove	Insert	
Pages 3/4 3-17	Pages 3/4 3-17	
3/4 3-18	3/4 3-18	
3/4 3-19	3/4 3-19	

TABLE 3.3.2-2 ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

RY		1. 1					
TINU -		FUNC		TRIP SETPOINT	ALLOWABLE VALUE		
	1.	PRIM	MARY CONTAINMENT ISOLATION				
μ-		a.	Reactor Vessel Water Level - Low, Level 2	≥ 129.8 inches*	≥ 127.6 inches		
3/4 3-17		b.	Drywell Pressure - High	≤ 1.68 psig	≤ 1.88 psig		
		c.	Containment and Drywell Purge Exhaust Plenum Radiation - High	<pre>< 2 mR/hr** above background</pre>	<pre>< 4 mR/hr** above backgroud</pre>		
		d.	Reactor Vessel Water Level - Low, Level 1	≥ 16.5 inches*	≥ 14.3 inches		
		e.	Manual Initiation	NA	NA		
	2.	MAIN	MAIN STEAM LINE ISOLATION				
		a.	Reactor Vessel Water Level ~ Low, Level 1	≥ 16.5 inches*	≥ 14.3 inches		
		b.	Main Steam Line Radiation - High	<pre> ≤ 3.0 x full power background</pre>	< 3.6 x full power background		
		c.	Main Steam Line Pressure - Low	≥ 807.0 psig	≥ 795.0 psig		
Ame		d.	Main Steam Line Flow - High	≤ 183 psid	≤ 191 psid		
Amendment No. 7		e.	Condenser Vacuum - Low	≥ 8.5 inches Hg. vacuum	\geq 7.6 inches Hg. vacuum		
		f.	Main Steam Line Tunnel Temperature - High	≤ 154.4°F**	≤ 158, 9°F**		
		g.	Main Steam Line Tunnel Δ Temperature - High	≤ 103.6°F**	< 107.4°F**		
		h.	Turbine Building Main Steam Line Temperature - High	≤ 134.4°F**	< 138.9°F**		
		i.	Manual Initiation	NA	NA		

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

UNIT	TRIP	FUNC	CTION	TRIP SETPOINT	ALLOWABLE VALUE	
7	3.	SECONDARY CONTAINMENT ISOLATION				
		a.	Reactor Vessel Water Level - Low, Level 2	≥ 129.8 inches*	> 127.6 inches	
		b.	Drywell Pressure - High	≤ 1.68 psig	< 1.88 psig	
		c.	Manual Initiation	NA	NA	
	4.	REAC	REACTOR WATER CLEANUP SYSTEM ISOLATION			
3/4 3-18		a.	Δ Flow - High	≤ 68 gpm**	< 77.1 gpm**	
		b.	Δ Flow Timer	< 45 seconds	< 47 seconds	
		c.	Equipment Area Temperature - High			
			1. RWCU Hx Room 2. Pump Rooms, Valve Nest Room	≤ 136.4°F ≤ 135.4°F	< 138.9°F ≤ 137.9°F	
		d.	Equipment Area Δ Temperature - High			
Amendment			 RWCU Hx Room RWCU Pump Rooms, Valve Nest Room 	< 76.65°F ≤ 28.65°F	< 78.4°F < 30.4°F	
		e.	Reactor Vessel Water Level - Low, Level 2	≥ 129.8 inches*	_ ≥ 127.6 inches	
		f.	Main Steam Line Tunnel Ambient Temperature - High	≤ 154.4°F**	< 158.9°F**	
		g.	Main Steam Line Tunnel Δ Temperature - High	< 103.6°F**	< 107.4°F**	
o •		h.	SLCS Initiation	NA	NA	
7		i.	Manual Initiation	NA	NA	

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TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION			TRIP SETPOINT	ALLOWABLE VALUE		
5 .	REAC	REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION				
	a.	RCIC Steam Line Flow - High	< 290" H ₂ 0**	≤ 298.5" H ₂ 0**		
	b.	RCIC Steam Supply Pressure - Low	≥ 60 psig	≥ 55 psig		
	c.	RCIC Turbine Exhaust Diaphragm Pressure - High	≤ 10 psig	≤ 20 psig		
	d.	RCIC Equipment Room Ambient Temperature - High	≤ 143.4°F	≤ 145.9°F		
	e.	RCIC Equipment Room ∆ Temperature - High	≤ 37.25°F	≤ 39°F		
	f.	Main Steam Line Tunnel Ambient Temperature - High	≤ 154.4°F**	≤ 158.9°F**		
	g.	Main Steam Line Tunnel Δ Temperature - High	< 103.6°F**	< 107.4°F**		
	h.	Main Steam Line Tunnel Temperature Timer	≤ 29 minutes	<pre>< 30 minutes</pre>		
	i.	RHR Equipment Room Ambient Temperature - High	≤ 157.4°F	≤ 159.9°F		
	j.	RHR Equipment Room Δ Temperature - High	≤ 50.65°F	≤ 52.4°F		
	k.	RCIC Steam Flow High Timer	3 seconds \leq t \leq 13 seconds	3 seconds \leq t \leq 13 seconds		
	1.	Drywell Pressure - High	≤ 1.68 psig	≤ 1.88 psig		
	m.	Manual Initiation	NA	NA		
		5. REAC a. b. c. d. e. f. g. h. j. k. 1.	 REACTOR CORE ISOLATION COOLING SYSTEM ISOLA a. RCIC Steam Line Flow - High b. RCIC Steam Supply Pressure - Low c. RCIC Turbine Exhaust Diaphragm Pressure - High d. RCIC Equipment Room Ambient Temperature - High e. RCIC Equipment Room Δ Temperature - High f. Main Steam Line Tunnel Ambient Temperature - High g. Main Steam Line Tunnel Ambient Temperature - High h. Main Steam Line Tunnel Temperature Timer i. RHR Equipment Room Ambient Temperature - High j. RHR Equipment Room Ambient Temperature - High k. RCIC Steam Flow High Timer l. Drywell Pressure - High 	S. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION a. RCIC Steam Line Flow - High		

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

	TRIP FUNCTION		TION	TRIP SETPOINT	ALLOWABLE VALUE	
UNIT	6.	RHR SYSTEM ISOLATION				
→		a.	RHR Equipment Area Ambient Temperature - High	≤ 157.4°F	≤ 159.9°F	
		b.	RHR Equipment Area Δ Temperature - High	≤ 50.65°F	≤ 52.4°F	
		c.	RHR/RCIC Steam Line Flow - High	< 105" H ₂ 0**	< 114" H ₂ 0**	
		d.	Reactor Vessel Water Level - Low, Level 3	≥ 177.7 inches*	≥ 177.1 inches	
3/4 3		e.	Reactor Vessel (RHR Cut-in Permissive) Pressure - High	< 135 psig	< 150 psig	
3-20		f.	Drywell Pressure - High	≤ 1.68 psig	≤ 1.88 psig	
		g.	Manual Initiation	NA	NA	

^{*}See Bases Figure B 3/4 3-1.

**Initial setpoint. Final setpoint to be determined during startup test program. Any required change to this setpoint shall be submitted to the Commission within 90 days of test completion.

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 7 TO FACILITY OPERATING LICENSE NO. NPF-58

CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated May 29, 1987, Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company, and Toledo Edison Company (the licensees) requested an amendment to Facility Operating License No. NPF-58 for Perry Nuclear Power Plant, Unit No.1, pursuant to 10 CFR 50.90. The licensee also requested this amendment pursuant to emergency circumstances as described in 10 CFR 50.91(a)(5). The change would modify the isolation setpoints for the following isolation signals:

- 1. Main steam line tunnel temperature-high Technical Specification 3.3.2, Table 3.3.2-2, Items 2.f, 4.f, and 5.f.
- 2. Main steam line tunnel delta temperature-high Technical Specification 3.3.2, Table 3.3.2-2, Items 2.g, 4.g. and 5.g.
- 3. Turbine building main steam line temperature-high Technical Specification 3.3.2, Table 3.3.2-2, Item 2.h.

The trip setpoint would be modified for: (1) main steam line tunnel temperature from $\leq 131.4^{\circ}F$ with an allowable value of 133.9°F to $\leq 154.4^{\circ}F$ with an allowable value of $\leq 158.9^{\circ}F$; (2) main steam line tunnel delta temperature-high from $\leq 80.65^{\circ}F$ with an allowable value of $\leq 82.4^{\circ}F$ to $\leq 103.6^{\circ}F$ with an allowable value of $\leq 107.4^{\circ}F$; and (3) turbine building main steam line temperature-high from $\leq 116.4^{\circ}F$ with an allowable value of $\leq 138.9^{\circ}F$.

These changes are needed because actual operating temperatures have exceeded anticipated operating temperatures due to conservative initial setpoints and subsequent sudden increases in outside ambient temperature coupled with increased power levels experienced in the power ascension test program.

2.0 EVALUATION

The purpose of these temperature trip setpoints is to detect a 25 gpm or greater steam leak in the area of the instruments. In the main steam line tunnel, the trip setpoint would isolate main steam isolation valves (MSIVs), reactor water cleanup system (RWCU), and the reactor core isolation cooling (RCIC) system, and for the turbine building instruments, would isolate the MSIVs. Isolations of the MSIVs would automatically initiate a reactor scram. The requested changes to the setpoints are based on existing operating analysis to date, and may require a further increase as the plant approaches 100% power and experiences peak summertime ambient air temperatures.

The automatic closure of the associated containment isolation valves for RCIC, MSIV and RWCU prevents excessive loss of reactor coolant and release of a significant amount of radioactive material if a leak were to occur in a main steam line outside containment. Such a leak would result in increased ambient air temperatures in the location of the temperature sensors. As indicated in the Final Safety Analysis Report, Section 15.6.4, however, high steam line flow is the initiating condition for the main steam isolation following a main steam line break outside containment.

Original leak detection setpoints were based on an assumed delta temperature above theoretical normal operating temperatures. The existing setpoints did not account for temperature stratification, hot spots due to radiant heat from components and reduced ventilation. The licensee has performed an analysis calculating new setpoints based upon new "normal" operating temperatures and the same assumed delta to account for the 25 gpm leak.

The licensee has verified that the higher temperature setpoints would not penetrate the temperature envelope for environmental qualification (EQ) of safety-related electrical equipment given the peak temperature transient resulting from the leak. While service life may be shortened slightly at the higher temperatures, the licensee has committed to evaluate the changes to service life, if any, and adjust the EQ maintenance program accordingly. The results of this evaluation will be provided to the NRC staff.

Because the change in setpoints will not affect the isolation setpoints for the steam line break accident outside containment (high steam line flow) and because the licensee has demonstrated that the new setpoints would perform their intended purpose of detecting a 25 gpm leak in the vicinity of main steam lines outside containment, the staff finds that the proposed changes are acceptable.

3.0 EMERGENCY CIRCUMSTANCES

The continued operation of the Perry Nuclear Power Plant, Unit No. 1, with the current containment isolation temperature setpoints would effectively amount to a derating of the unit, limiting it to a power level less than allowed by Test Condition 3 (75%) which it is currently in. Further, the licensee has provided information supporting the need for the changes which could not have been anticipated far enough in advance to support a normal amendment application process. While some increase in ambient temperature

was seen, sufficient margin appeared to exist between ambient temperatures and the trip setpoints so as not to require an emergency change. In addition, the licensee had improved local ventilation and made insulation modifications which were expected to mitigate the ambient temperature rise. Only recently CEI discovered that unseasonably high outside ambient air temperatures coupled with the higher power levels allowed by Test Condition 3, would cause local ambient air temperatures to rise to within one degree of the trip setpoints. Therefore, no further margin existed despite the licensee's efforts to mitigate the ambient air temperature rise. The licensee was forced to reduce power to avoid exceeding the trip setpoints, effectively derating the unit.

The NRC staff has reviewed the circumstances associated with the licensee's request and agrees that the amendment is necessary for Perry 1 to avoid deration of the unit and continue startup testing and that failure to act in a timely manner would result in deration of the plant. The staff also concludes that this situation could not reasonably have been avoided. The staff finds that a valid emergency exists, as defined by 10 CFR 50.91(a)(5).

3.1 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves no significant hazards considerations if operation of the facility in accordance with a proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The licensee has provided a discussion concerning a finding relative to whether a significant hazards consideration exists.

The proposed amendment to the Technical Specifications would not involve a significant increase in the probability or consequences of an accident previously evaluated because there is no change in the design or performance of plant systems or components from those evaluated in the Final Safety Analysis Report (FSAR). The FSAR accident analysis used different isolation instrumentation for line breaks outside containment (i.e., high steam flow). No accident analyses depend upon this leak detection instrumentation which is a diverse method of leak detection. discussed in FSAR Section 5.2.5.2.2, this isolation is provided following a leak to prevent excessive loss of reactor coolant and release of a significant amount of radioactive material from the reactor coolant pressure boundary. This function is maintained by the Technical Specification revision. Since there is no change in the methods of leak detection, no additional reactor coolant would be lost nor radioactive material released beyond that previously assumed for the leak Therefore, there is no increase in the probability or the consequences of an accident by this amendment. There is no increase in the probability of an accident by this amendment since the instrumentation affected is not part of the reactor protection system.

Since the proposed amendment does not change any previously reviewed and approved description or analysis described in the FSAR, the proposed amendment does not create the possibility of a new or different kind of accident. As discussed above, this isolation is provided following a leak to prevent excessive loss of reactor coolant and release of a significant amount of radioactive material from the reactor coolant pressure boundary. This function is maintained by the Technical Specification revision. Since there is no change in the size of the leak detected, no additional reactor coolant would be lost nor radioactive material released beyond that previously assumed for the leak event. Therefore, the change request does not create the possibility of a new or different kind of accident from any accident previously evaluated.

There would not be a significant reduction in a margin of safety because there will be no detrimental changes in the availability, operability or reliability of the systems. As discussed in FSAR Section 5.2.5.2.2, the setpoint is designed to identify a 25 gpm leak in these areas. The setpoints requested are established to meet this criteria. Therefore, no margin of safety has been affected.

The staff has concluded, based on the above, that the amendment does not increase the probability or consequences of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any previously evaluated, and does not involve a significant reduction in a margin of safety. Accordingly, the amendment does not involve a significant hazards consideration.

3.2 STATE CONSULTATION

A copy of this amendment request was transmitted by the licensee to the State of Ohio via express carrier. Both the staff and the licensee made good faith efforts to contact the State but were unable to do so.

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 made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 50.22(b), no environmental impact statement nor 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: May 29, 1987