50-387

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 23, 1997

Mr. Robert G. Byram
Senior Vice President-Nuclear
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, PA 18101

SUBJECT: EMERGENCY TECHNICAL SPECIFICATIONS CHANGES ADDRESSING THE INOPERABLE ACOUSTIC MONITOR, SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1 (TAC NO. M99615)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 169 to Facility Operating License No. NPF-14 for the Susquehanna Steam Electric Station, Unit 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 15, 1997, as supplemented by letter dated September 16, 1997.

This amendment revises the applicability requirement in TS Sections 3.4.2, "Safety/Relief Valves" (Action c), 4.4.2, and 3.3.7.5, "Accident Monitoring Instrumentation" (TS Table 3.3.7.5-1, Action 80). The change to the referenced TSs adds the following applicability footnote:

> Compliance with these requirements for the "S" SRV acoustic monitor is not required for the period beginning September 12, 1997, until the next unit shutdown of sufficient duration to allow for containment entry, not to exceed the 10th refueling and inspection outage.

A Notice of Enforcement Discretion (NOED) was requested by letter dated September 11, 1997, as supplemented by letter dated September 12, 1997. The NOED was granted verbally on September 12, 1997 and confirmed by letter dated September 17, 1997.

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A copy of our safety evaluation is also enclosed. Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration and Opportunity for a Hearing will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

Chester Poslusny, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-387

Enclosures: 1. Amendment No. 169 to License No. NPF-14
2. Safety Evaluation

cc w/encls: See next page

A copy of our safety evaluation is also enclosed. Notice of Issuance of Amendment to Facility Operating License and Final Determination of No Significant Hazards Consideration and Opportunity for a Hearing will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

/S/

Chester Poslusny, Senior Project Manager
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.169
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated September 15, 1997, as supplemented by letter dated September 16, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 the Facility Operating License No. NPF-14 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 169 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L 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 and is to be implemented on the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: September 23, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 169

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following pages of the Appendix A Technical Specifications with enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

REMOVE	INSERT
3/4 4-5	3/4 4-5
3/4 3-71	3/4 3-71

TABLE 3.3.7.5-1
ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	ACTION	APPLICABLE OPERATIONAL CONDITION
1. Reactor Vessel Steam Dome Pressure	2	1	80	1,2
2. Reactor Vessel Water Level	2	1	80	1,2
3. Suppression Chamber Water Level	2	1	80	1,2
4. Suppression Chamber Water Temperature	8,6 locations	6,1/location	80	1,2
5. Suppression Chamber Air Temperature	2	1	80	1,2
6. Primary Containment Pressure	2/range	1/range	80	1,2
7. Drywell Temperature	2	1	80	1,2
8. Drywell Gaseous Analyzer				
a. Oxygen	2	1	80	1#, 2#
b. Hydrogen	2	1	82	1#, 2#
9. Safety/Relief Valve Position Indicators	1/valve*	1/valve*	80	1,2
10. Containment High Radiation	2	1	81	1,2
11. Noble gas monitors**				
a. Reactor Bldg. Vent	1	1	81	1, 2 and ***
b. SGTS Vent	1	1	81	1, 2 and ***
c. Turbine Bldg. Vent	1	1	81	1, 2
12. Neutron Flux	2	1	80	1, 2

* Acoustic monitor. Compliance with these requirements for the "S" SRV acoustic monitor is not required for the period beginning September 12, 1997, until the next unit shutdown of sufficient duration to allow for containment entry, not to exceed the 10th refueling and inspection outage.

** Mid-range and high-range channels

*** When moving irradiated fuel in the secondary containment.

\# See Special Test Exception 3.10.1

3/4.4.2 SAFETY/RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.2 The safety valve function of at least 12 of the following reactor coolant system safety/relief valves shall be OPERABLE with the specified code safety valve function lift settings: * **

2 safety-relief valves @ 1175 psig ± 1%
6 safety-relief valves @ 1195 psig ± 1%
8 safety-relief valves @ 1205 psig ± 1%

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a. With the safety valve function of one or more of the above required safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

b. With one or more safety/relief valves stuck open, provided that suppression pool average water temperature is less than 105°F, close the stuck open relief valve(s); if unable to close the open valve(s) within 2 minutes or if suppression pool water temperature is 105°F or greater, place the reactor mode switch in the Shutdown position.

c. #With one or more safety/relief valve acoustic monitors inoperable, restore the inoperable monitor(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.2 #The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE with the setpoint verified to be 0.25 of the full open noise level by performance of a:

a. CHANNEL FUNCTIONAL TEST at least once per 31 days, and a
b. Calibration in accordance with procedures prepared in conjunction with its manufacturer's recommendations at least once per 18 months.##

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* The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.

** Up to 2 inoperable valves may be replaced with spare OPERABLE valves with lower setpoints until the next refueling.

\# Compliance with these requirements for the "S" SRV acoustic monitor is not required for the period beginning September 12, 1997, until the next unit shutdown of sufficient duration to allow for containment entry, not to exceed the 10th refueling and inspection outage.

The provision of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.169TO FACILITY OPERATING LICENSE NO. NPF-14

PENNSYLVANIA POWER AND LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

DOCKET NO. 50-387

1.0 INTRODUCTION

By letter dated September 15, 1997, as supplemented by letter dated September 16, 1997, the Pennsylvania Power and Light Company (PP&L, the licensee) submitted a request for changes to the Susquehanna Steam Electric Station (SSES), Unit 1, Technical Specifications (TSs). The requested changes would revise TS Sections 3.4.2, "Safety/Relief Valves" (Action c), 4.4.2, and 3.3.7.5, "Accident Monitoring Instrumentation" (TS Table 3.3.7.5-1, Action 80) to add the following footnote:

> Compliance with these requirements for the "S" SRV acoustic monitor is not required for the period beginning September 12, 1997, until the next unit shutdown of sufficient duration to allow for containment entry, not to exceed the 10th refueling and inspection outage.

A Notice of Enforcement Discretion (NOED) was requested by letter dated September 11, 1997, as supplemented on September 12, 1997, with regard to the subject TS requirements. The U.S. Nuclear Regulatory Commission orally granted the request for enforcement discretion on September 12, 1997 which was confirmed by letter dated September 17, 1997. The application dated September 15, 1997, as supplemented letter dated September 16, 1997, is an emergency request from the licensee for TSs revisions to effect the changes approved in the NOED.

2.0 EVALUATION

The accident at TMI-2 was initiated by a stuck-open pilot operated relief valve (PORV). Prior to the accident, both pressurized water reactors and boiling water reactors included temperature monitoring instrumentation on the discharge tailpipes from any relief valves to detect weeping, cycling, or stuck-open valves. One of the many NUREG-0737 requirements was that licensees install a second diverse means on the tailpipes to detect an open relief valve. Considering what was most readily available, almost all licensees installed acoustic monitors as the second means of detecting flow in the line. The requirement to have the acoustic monitor on each discharge line operable while at power was incorporated in the TSs. In the new Improved Standard

Technical Specifications ("Standard Technical Specifications, General Electric Plants, BWR/4," NUREG-1433, Rev. 1, April 1995), the requirement to have either the temperature sensors or acoustic monitors operable was deleted from the applicable TSs.

As described in the SSES Final Safety Analysis Report, the safety/relief valve position indication system is a safety grade system, indicated and alarmed on a control room panel, and powered from a Class IE vital instrument bus. Also, backup methods of determining valve position are available and are discussed in the off normal procedures.

Specifically, off normal procedure ON-183-001, "Stuck Open Safety Relief Valve,' Revision 15, dated February 27, 1997, provides a list of indications and symptoms for determining safety/relief valve position indication. This off normal procedure is included as part of current operator training and has been trained on by the SSES Operators. These alternate indications and symptoms are:

-Loss of Generator MWs
-Indicated Feedwater Flow greater than indicated steam flow
-Feedwater Temperature decreasing due to SRV steam bypassing feedwater heating
-Reactor Pressure Vessel Pressure decreasing
-Reactor Pressure Vessel Level swell
-Suppression Pool Temperature increasing
-Suppression Pool Level increasing
-Suppression Pool Pressure increasing

The suppression pool temperature monitoring system (SPOTMOS) provides the operator with safety grade, redundant pool temperature information. There are 16 temperature sensors in the system, with two in each location, each powered from a separate division. These sensors are located in the upper levels of the suppression chamber. There are also non-safety grade temperature elements located in the lower elevations of the pool to measure bulk-water temperature. The reactor pressure vessel pressure, reactor pressure vessel level swell and suppression pool level instrumentation are used to satisfy the positions set forth in Regulatory Guide 1.97 and are safety grade systems. The suppression pool level instrumentation is also safety grade.

For the "S" SRV, Suppression Pool Temperature Elements TE 15757 thru 15761 are in proximity to the SRV discharge line quencher and would see an elevated temperature if the SRV were open. Temperature Elements TE 15757, 15758, 15759, and 15760 are safety grade elements. In addition, tail pipe temperature sensors also provide immediate indication if an SRV is open. Moreover, there are multiple other means that would alert the operators to a weeping, cycling, or stuck-open relief valve.

As a compensatory measure, the licensee issued a Procedure Change to procedure ON-183-001 identifying the condition of the acoustic monitor for the "S" SRV and identifying the Suppression Pool Temperature Monitoring channels that are located most closely to its discharge line. High temperature at the Suppression Pool Temperature Monitoring Channels will provide specific indication of steam discharge through the "S" SRV.

The licensee's proposed changes to the TS would permit Unit 1 to operate with the "S" SRV acoustic monitor inoperable until the next unit shutdown of sufficient duration to allow for containment entry or until the 10th refueling and inspection outage, whichever occurs first. The 10th refueling and inspection outage is scheduled to start in spring 1998. SSES has Crosby safety/relief valves. The performance history on these valves have shown only two instances of weeping, and no cycling or inadvertent opening. Setpoint drift has not been significant. Given the performance history of these valves and the many other means available to alert the operators to possible weeping, cycling, or a stuck-open relief valve, the proposed changes to the TSs are acceptable.

3.0 EMERGENCY CIRCUMSTANCES

The licensee's September 16, 1997, supplement states the following in regard to the emergency circumstances related to the proposed action:

> An inoperable acoustic monitor for a single safety relief valve was identified on September 10, 1997. Technical Specifications required repair of the monitor or subsequent shutdown of the unit. The acoustic monitor was determined to require a containment entry to repair. A request for enforcement discretion to continue operation was prepared and submitted on September 11, 1997. On September 12, 1997, a supplemental submittal was provided, and the NRC granted the enforcement discretion verbally. Susquehanna SES Unit 1 continues to operate on this basis. Timely action is required consistent with the enforcement discretion process to ensure that the Technical Specifications properly characterize the interim requirements for the acoustic monitor in question.

The licensee further stated the following in regard to why the emergency could not be avoided:

> As stated above, Susquehanna SES Unit 2 [sic - the licensee intends Unit 1] experienced an unanticipated component failure that resulted in entry into a shutdown action statement in accordance with the Technical Specifications. These circumstances were clearly not able to be anticipated, and therefore this request was not avoidable. Further, based on the time necessary to evaluate this problem, interact on enforcement discretion, and to prepare and review the referenced proposal internally, PP&L believes that this application has been submitted in a timely fashion.

Due to the failure of the acoustic monitor, plant TS required that the facility be shut down on September 12, 1997. The staff has determined that the request for enforcement discretion was justified by plant conditions related to the operability of the acoustic monitor and granted enforcement discretion in accordance with NRC Inspection Manual Part 9900: Technical Guidance, Operations - Notices of Enforcement Discretion, until an emergency amendment could be issued to modify the license and reflect the current plant condition, thereby avoiding an unnecessary plant shutdown. The staff concludes that the licensee applied for this amendment in a timely manner and, based on the nature of the failure of the acoustic monitor, could not have avoided or anticipated this emergency situation. The NRC staff has therefore determined that the circumstances warrant the processing of this amendment on an emergency basis pursuant to 10 CFR 50.91(a)(5).

4.0 FINAL NO SIGNIFICANT CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not: (1) involve a significant increase in the probability or consequences of any 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 amendment has been evaluated against the three standards in 10 CFR 50.92(c). In its analysis of the issue of no significant hazards consideration, as required by 10 CFR 50.91(a), the licensee has provided the following:

1. This proposal does not involve a significant increase in the probability or consequences of an accident previously evaluated. The acoustic monitors do not affect the operation of the safety/relief valves. The SRV safety-valve function (TS 3.4.2), safety-related ADS function (six selected valves-TS 3.5.1) and non-safety related automatic and manual relief functions are independent of the acoustic monitoring function. No failure or misoperation of the acoustic monitoring system can affect the ability of these valves to perform their design functions.

   Failure of the acoustic monitoring system to actuate in the event of an actual valve actuation does not affect the consequences of that action. The purpose of the monitoring system is to increase the probability that a failure of the valve actuation mechanism is detected.

   Operation without this detection system will not significantly increase the plant vulnerability to the event. Operation without this detection system would also not create any condition where the reliability of the valve is reduced.

The SSES IPE assigns a conservative 1% probability to the stuck open safety relief valve event. Susquehanna utilizes Crosby SRVs. This valve is specifically design and specified for the intended function, and is operated and maintained in accordance with the requirements of the design. It has not experienced the reliability problems that have occurred with other SRV designs. The lack of position monitoring will not affect the valve's ability to perform its intended operational and safety function.

Operation without the SRV acoustic monitor will not affect the plant response to the stuck open relief valve at power or hot shutdown conditions. The stuck open SRV transient as analyzed in the Design Assessment Report (DAR) indicates that the maximum pool transient temperature (185°F) does not approach the NUREG 0783 accepted limit (208°F bulk pool temperature). This is assured by using SPOTMOS in accordance with off normal procedure ON-183-001.

SRV tail pipe temperature rise is a true early indication of initial SRV actuation, and is recognized as an acceptable backup method in the NRC SER (NUREG 0776). Alarms generated by this sensor will alert the operator to the open SRV and start the two minute period mandated by Tech Spec 3.4.2. The Suppression Pool Temperature Elements located closest to the "S" SRV discharge quencher will also indicate heat input to the pool from that line initially. Other indications can be used to infer an open relief valve.

The probability of a Stuck Open SRV Event is not affected by the lack of position indication for the SRV. The ability to detect the stuck open SRV condition is adequately covered by secondary reactor vessel and steam cycle parameter indications, and will not result in an increase in the probability or consequences of an accident previously evaluated.

2. This proposal does not create the possibility of a new or different type of accident from any previously evaluated. The SRV Acoustic Monitor performs no control or active protective function other than indication. Failure or misoperation of this device will not cause an unanalyzed failure or misoperation of an engineered safety feature. Because of the diverse and redundant indication system described above, misoperation of this system will not cause the operator to take unanalyzed actions, nor will it cause the operator to commit errors of commission or omission, and as such will not create the possibility of a new or different type of accident.

3. This change does not involve a significant reduction in a margin of safety. Operating without the "S" SRV position indication does not reduce the design or operating basis margin to safety. Primary Containment controls are in place that can effectively deal with the operating condition. In the unlikely event that the "S" SRV should cycle, sufficient indication would be available to identify and mitigate the occurrence. Thus, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above discussion, the staff concludes that this amendment meets the criteria set forth in 50.92, and therefore, does not involve a significant hazard consideration.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendment. In a telephone conversation on September 15, 1997, the State Official indicated that there were no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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. Accordingly, the 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 the amendment. The Commission has made a final no significant hazards finding with respect to this amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) the amendment does not (a) significantly increase the probability or consequences of an accident previously evaluated, (b) increase the possibility of a new or different kind of accident from any previously evaluated or (c) significantly reduce a safety margin and, therefore, the amendment does not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (3) such activities will be conducted in compliance with the Commission's regulations, and (4) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: T. Liu
D. H. Jaffe

Date: September 23, 1997