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

APR 01 1986

Docket No. 50-388

Mr. Harold W. Keiser
Vice President
Nuclear Operations
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Keiser:

Subject: Amendment No. 24 to Facility Operating License No.
NPF-22, Susquehanna Steam Electric Station, Unit 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 24 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Unit 2. The amendment is in response to your letter dated October 10, 1985.

This amendment revises the Unit 2 Technical Specifications to reflect the replacement of magnetic-only breakers with thermal-magnetic breakers.

A copy of the related safety evaluation supporting Amendment No. 24 to Facility Operating License NPF-14 is enclosed.

Sincerely,

A handwritten signature in cursive script that reads "Elinor G. Adensam".

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosures:

1. Amendment No. 24 to NPF-22
2. Safety Evaluation

cc w/enclosures:
See next page

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Certified By A handwritten signature in cursive script, likely of the certifying official, written over a horizontal line.

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Mr. Harold W. Keiser
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station
Units 1 & 2

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

PENNSYLVANIA POWER & LIGHT COMPANY
ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 24
License No. NPF-22

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 October 10, 1985, 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-22 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. 24 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.

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3. This amendment is effective upon startup following the Unit 2 first refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

Elinor G. Adensam

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: ~~APR~~ 01 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 24

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

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. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE

3/4 8-23
3/4 8-24

3/4 8-25
3/4 8-26

3/4 8-27
3/4 8-28

3/4 8-29
3/4 8-30

INSERT

3/4 8-23 (overleaf)
3/4 8-24

3/4 8-25
3/4 8-26

3/4 8-27
3/4 8-28

3/4 8-29
3/4 8-30 (overleaf)

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

- a. With less than the Division I or Division II load groups of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- b. With less than the Division I or Division II load groups of the above required Unit 2 D.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- c. With less than Division I or Division II of the above required Unit 1 D.C. distribution system energized, either:
 1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or
 2. Transfer the common loads aligned to the deenergized Unit 1 load group(s) to the corresponding Unit 2 load group(s).Otherwise, declare the common loads aligned to the deenergized Unit 1 load group(s) inoperable and take the ACTION required by the applicable Specification(s).
- d. With one or both of the isolated 480 volt A.C. Swing busses inoperable, declare the associated LPCI loop inoperable (see Specification 3.5.2).
- e. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The isolated A.C. swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the preferred power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 and all fuses tested pursuant to Specification 4.8.4.1.a.2 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

- a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8.4.1-1 and/or fuses tested pursuant Specification 4.8.4.1.a.2 inoperable:
 1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and
 2. Declare the affected system or component inoperable, and
 3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each of the primary containment penetration conductor overcurrent protective devices required above shall be demonstrated OPERABLE:

- a. At least once per 18 months:
 1. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the thermal (long time delay) element of Types HFB-TM and KB-TM (thermal magnetic) circuit breakers, and verifying that the circuit breaker operates within the time delay band-width for

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

that current specified by the manufacturer for the test current. The magnetic (instantaneous) element shall be tested by injecting a current in excess of 120% of the pickup value of the magnetic (instantaneous) element and verifying that the circuit breaker trips instantaneously with no intentional time delay. Type HFB-M (magnetic only) circuit breaker testing shall also follow this procedure except that no thermal trip elements will be involved. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. a. By selecting and functionally testing a representative sample of each type of fuse on a rotating basis. Each representative sample of fuses shall include at least 10% of all fuses of that type. The functional test shall consist of a non-destructive resistance measurement test which demonstrates that the fuse meets its manufacturer's design criteria. Fuses found inoperable during these functional testing shall be replaced with OPERABLE fuses prior to resuming operation. For each fuse found inoperable during these functional tests, an additional representative sample of at least 10% of all fuses of that type shall be functionally tested until no more failures are found or all fuses of that type have been functionally tested, or
 - b. By replacing 100% of all required fuses.
3. Functionally testing each overcurrent relay listed in Table 3.8.4.1-1. Testing of these relays shall consist of injecting a current in excess of 120% of the nominal relay initiation current and measuring the response time. The measured response time shall be within $\pm 10\%$ of the specified value.
 - b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

TABLE 3.8.4.1-1

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

<u>CIRCUIT BREAKER</u> <u>DESIGNATION</u>	<u>SYSTEM/EQUIPMENT POWERED</u>
A. <u>Type HFB-TM*</u>	
1. 2B237043	Rx Recirc/HV-B31-2F023A
2. 2B219022	Rx Recirc/HV-B31-2F031A
3. 2B219023	Rx Recirc/HV-B31-2F032A
4. 2B246011	Rx Recirc/HV-B31-2F023B
5. 2B229022	Rx Recirc/HV-B31-2F031B
6. 2B229023	Rx Recirc/HV-B31-2F032B
7. 2B236042	Drywell Air Flow/2V411A
8. 2B236032	Drywell Air Flow/2V412A
9. 2B236011	Drywell Air Flow/2V413A
10. 2B236033	Drywell Air Flow/2V414A
11. 2B236082	Drywell Air Flow/2V415A
12. 2B236043	Drywell Air Flow/2V416A
13. 2B236021	Drywell Air Flow/2V417A
14. 2B246091	Drywell Air Flow/2V411B
15. 2B246103	Drywell Air Flow/2V412B
16. 2B246102	Drywell Air Flow/2V413B
17. 2B246061	Drywell Air Flow/2V414B
18. 2B246072	Drywell Air Flow/2V415B
19. 2B246081	Drywell Air Flow/2V416B
20. 2B246051	Drywell Air Flow/2V417B
21. 2B236052	RHR/HV-E11-2F009

TABLE 3.8.4.1-1 (Continued)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

<u>CIRCUIT BREAKER</u> <u>DESIGNATION</u>	<u>SYSTEM/EQUIPMENT POWERED</u>
22. 2B237073	RHR/HV-E11-2F022
23. 2B237082	HPCI/HV-E41-2F002
24. 2B253021	NSSS/HV-B21-2F011A
25. 2B263023	NSSS/HV-B21-2F011B
26. 2B253041	MSIV Hoist/TB0815
27. 2B263021	MSIV Hoist/TB0816
B. <u>Type HFB-M*</u>	
1. 2B236023	Cont. Inst. Gas/HV-22603
2. 2B246022	RCIC/HV-E51-2F007
3. 2B237072	NSSS/HV-B21-2F016
4. 2B236102	NSSS/HV-B21-2F001
5. 2B246112	NSSS/HV-B21-2F002
6. 2B246113	NSSS/HV-B21-2F005
7. 2B236053	RWCU/HV-G33-2F001
8. 2B253053	RWCU/HV-G33-2F102
9. 2B263043	RWCU/HV-G33-2F100
10. 2B263053	RWCU/HV-G33-2F106
11. 2B263081	RWCU/HV-G33-2F101
12. 2B246062	RBCCW/HV-21346
13. 2B246012	RBCCW/HV-21345
14. 2B253063	Drywell Sump/2P402A
15. 2B263071	Drywell Sump/2P402B

TABLE 3.8.4.1-1 (Continued)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

<u>CIRCUIT BREAKER DESIGNATION</u>	<u>SYSTEM/EQUIPMENT POWERED</u>
16. 2B253043	Drywell Sump/2P403A
17. 2B263072	Drywell Sump/2P403B
<u>C. Type KB-TM</u>	
1. 2B216083 2B216092	Cont. H2 Recombiner/2E440A
2. 2B226102 2B226103	Cont. H2 Recombiner/2E440B
3. 2B236103 2B236121	Cont. H2 Recombiner/2E440C
4. 2B246032 2B246033	Cont. H2 Recombiner/2E440D
<u>D. Circuit Breakers Tripped By Overcurrent Relays</u>	
1. 2A20501 2A20502	Rx Recirc/2P401A
2. 2A20601 2A20602	Rx Recirc/2P401B

*Each circuit breaker designation represents two redundant circuit breakers.

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ELECTRICAL POWER SYSTEMS

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection of each valve shown in Table 3.8.4.2-1 shall be bypassed continuously by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

- a. With thermal overload protection for one or more of the above required valves not bypassed continuously by an OPERABLE integral bypass device, take administrative action to continuously bypass the thermal overload within 8 hours or declare the affected valve(s) inoperable and apply the appropriate ACTION statement(s) for the affected system(s).
- b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.4.2.1 The thermal overload protection for the above required valves shall be verified to be bypassed continuously by an OPERABLE integral bypass device by verifying that the thermal overload protection is bypassed:

- a. At least once per 18 months, and
- b. Following maintenance on the motor starter.

4.8.4.2.2 The thermal overload protection shall be verified to be bypassed following activities during which the thermal overload protection was temporarily placed in force.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

DOCKET NO. 50-388

1.0 INTRODUCTION

By letter dated October 10, 1985, the Pennsylvania Power and Light Company requested changes to the Unit 2 Technical Specifications (TS) to support replacement of certain magnetic-only breakers with thermal-magnetic breakers.

This amendment makes the following changes: (1) Technical Specification 4.8.4.1.a.1 is modified to achieve a greater level of clarity for this surveillance, which was previously ambiguous in cases where no trip setpoint or response time was provided. This TS now specifies how acceptance criteria are met for each type of breaker, i.e., magnetic-only (HFB-M) and thermal-magnetic (HFB-TM, KB-TM). (2) Technical Specification Table 3.8.4.1-1 is revised to reflect the replacement of magnetic-only circuit breakers with thermal-magnetic circuit breakers. Changing the containment penetration overcurrent protection from magnetic-only to thermal-magnetic circuit breakers allows detection of substantially lower short circuit currents. (3) Additional changes to Table 3.8.4.1-1 are deletion of frame rating/UL, trip setpoint and response time. Other administrative changes have been made to Table 3.8.4.1-1 and are discussed below.

2.0 EVALUATION

Technical Specification 4.8.4.1.a.1: These changes achieved a greater level of clarity in that this revision specifies how the acceptance criteria shall be met for each type of breaker, i.e., magnetic-only (HFB-M) and thermal-magnetic (HFB-TM KB-TM). In reviewing this proposal the staff finds that these changes are preferable to the existing Technical Specification. Additionally, the staff finds that, since the degree of testing for any given breaker remains unchanged and no safety implications exist, the licensee's proposal is fully acceptable.

Table 3.8.4.1-1:

I. Replacement of magnetic-only with thermal-magnetic circuit breakers.

The as-built system of containment penetration overcurrent protection was designed to provide protection for "bolted" short circuits occurring at the terminals of 480-volt motors or other loads. However, since the as-built distribution system is a 480-volt, solidly grounded system, it is assumed that "arcing" short circuits could occur. The problem is that the phase to neutral voltage in a 480-volt system is high enough to allow re-striking after the arc extinguishes at a current zero.

This re-striking may result in very low short circuit currents (that is, very high arc resistances) which approach full load currents. Usually, these small magnitude short circuit currents are detected by motor overloads and isolated. However, in this specific case, some overloads are bypassed to ensure completion of a safety function; and, even if the overloads were not bypassed, a redundant protector would not exist since only one overload has been installed.

Changing the containment penetration overcurrent protection from magnetic-only to thermal-magnetic circuit breakers allows detection of substantially lower short circuit currents. The NRC staff originally recommended that the licensee replace these magnetic-only circuit breakers with thermal-magnetic circuit breakers; therefore, the NRC staff finds the licensee's proposal acceptable.

II. Editorial Changes

- a. The NRC staff has reviewed the licensee's proposal to reduce the amount of information in this table and reorganize the table listing. The modified format of the table deletes the Frame Rating/UL, Trip Setpoint, and Response Time columns from the Table. The listing of breaker information has been grouped by system, rather than randomly.

Electrical equipment overcurrent protective relaying (devices) protect the electrical equipment including cable and the containment penetrations from fault current. The fault current for each penetration is derived based on the system voltage level, e.g. 480 volts, 4160 volts. The licensee has included this information by noting the type of breaker, e.g. (HFB, KB). Therefore, protective devices are classified in the technical specifications at a voltage level. Thus, it is unnecessary and serves no useful purpose to specify Frame Rating/UL information in the Technical Specifications for the overcurrent protective devices' surveillance requirement.

For overcurrent protective devices, the trip setpoint and response time are required to protect the equipment from the fault current. This information has been moved from the Table and, as a practical matter, placed in the surveillance test procedure in the revised Technical Specification 4.8.4.1.

The overcurrent protective relaying for Susquehanna has two elements, magnetic (instantaneous), and thermal (long term time delay). Testing of these breakers consists of injecting a current with a value equal to 300% of the setpoint of the thermal element, and verifying that the circuit breaker operates within the time delay bandwidth for the current specified by the manufacturer. The magnetic element shall be tested by injecting a current equal to 120% of the setpoint of the magnetic element and verifying that the circuit breakers trip instantaneously.

Conformance with these practical surveillance specifications will adequately demonstrate that protection of containment penetrations will be provided by the protective devices, at appropriate values.

- b. "Circuit Breaker Location" has been changed to "Circuit Breaker Designation."
- c. "Molded Case Circuit Breaker" headings were deleted. The need for this heading is tied to a need to differentiate test methods from those used for metal case circuit breakers. The surveillance is now tied to the types listed since no metal case breakers are now in use, therefore, the deleted information would no longer serve any purpose.
- d. Editorial descriptions of specific equipment have been deleted. System and equipment number is sufficient information to be included in the Technical Specifications.
- e. Footnotes referring to vendors have been deleted since they are unnecessary. The type definitions provided are covered by the revised surveillance.
- f. Footnote "+" was revised (new footnote *) to drop a reference to A and B, because this is not always the correct designation. Furthermore, such specific information is unnecessary; the key information is that two redundant breakers are to be OPERABLE.

The staff has reviewed all the changes proposed for Table 3.8.4.1-1 and finds that these changes are appropriate to support the replacement of the magnetic breakers with thermal-magnetic breakers. Additionally, the staff finds that the information which has been deleted in Table 3.8.4.1-1 was an unnecessary restriction which did not significantly increase safe operation, and, therefore, that this change is acceptable.

It should be noted that the identical change was approved on May 28, 1985, for Unit 1.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in 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. 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 nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no

significant hazards consideration which was published in the Federal Register (50 FR 53234) on December 30, 1985, and consulted with the state of Pennsylvania. No public comments were received, and the state of Pennsylvania did not have any comments.

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 nor to the health and safety of the public.

Principal Contributors: Sang Rhaw, Plant Systems Branch, DRL
Mari-Josette Campagnone, Project Directorate No. 3, DBL

Dated: ~~11/11/85~~ 11/11/85